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Including the Railroad Gazette and the Railway Age

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THE new English law prescribing the form of accounts to be rendered to the Board of Trade by British railway companies is described in another column. While the form of these accounts is in some ways comparable to and in other ways in contrast with the form prescribed by the Interstate Commerce Commission, the spirit which pervades the law is unmistakably different from the spirit that pervades the accounting orders of the Interstate Commerce Commission. The first section of the English law provides that "every railway company shall annually prepare accounts . . . with the form set out . . . and shall submit their accounts to *their auditors* in that form." The italics are our own. Professor Adams, backed by the Interstate Commerce Commission, undertook to act as the accountant with powers of auditor for the railways. The English Parliament wants stockholders of railways and the English Board of Trade to have at their disposal certain information; and it calls for this information in a non-technical, common-sense sort of way, leaving it to the railway accountants and the stockholders' auditors to see that the bookkeeping is done according to the best bookkeeping theory. The difference between our own commission's methods and purposes and the English government's methods and purposes is obvious. The reasons for the differences are not hard to explain. Our commission attempts to teach the railway companies the proper bookkeeping method and to compel them to adopt this method. It goes further than simply calling for information, and prescribes minutely what the theory should be which shall govern in preparing this information. It does this because of the fear, grounded on past experience, that the railway companies will succeed in giving false or misleading information through the use of various systems of bookkeeping which may be founded on quite different theories of bookkeeping practice, as between different companies. There is none of this spirit of attempting to catch the railways in a misdeed in the newly enacted English law, since, presumably, in England past experience has not justified any such attitude.

WE give elsewhere in this issue almost in full the notable address that Chairman Prouty of the Interstate Commerce Commission delivered at the dinner of the Traffic Club of Pittsburgh on March 28. There are some things in the address with which many railway men will disagree. There are more things in it with which they will agree. There is nothing in it which they will not read with interest. Mr. Prouty has now been on the Interstate Commerce Commission for 16 years. During all this time many railway men have regarded him as too radical in his views. Some have even thought that he has had a certain amount of bias against the railways. But they have never questioned his intention to be impartial; nor have they ever, in public or in private, questioned his sturdy integrity and his intellectual eminence. He has the weaknesses of his virtues, but the *Railway Age Gazette* believes that he ranks today in point of character and in point of ability among the very greatest public men of America. There are some people who think that Mr. Roosevelt has influenced railway regulation in this country more than any other person. The man who has put his imprint most deeply on railway regulation in the United States is not Mr. Roosevelt, but Charles Azro Prouty. His are mainly the ideas that have been embodied in the Act to Regulate Commerce; his mainly the tone that up to the present time has been given to the administration of that law by the Interstate Commerce Commission. These are some of the things—and another is his scholarly and effective use of the English language—that make Mr. Prouty's utterances as interesting to those who differ from him as to those who concur with him. It is worth noting in passing that the differences of opinion between Mr. Prouty and the railway managers are not as wide as they used to be. This is because both Mr. Prouty and the railway men have somewhat altered their points of view; although it must be confessed that the point of view of the railway men has changed more than has that of Mr. Prouty.

THE one point in Mr. Prouty's speech with which railway men will most radically disagree is that regarding the limitation of railway profits. It is not practicable, as his comments might be taken to imply, and as many people believe, to limit all railways to an average dividend of 5 per cent. It would be practicable if the government would guarantee this return, but if the nation guaranteed this or any other return, there would be a speedy decline in the efficiency of railway management which probably would make it necessary for the government to go down in the taxpayer's pocket to get the wherewithal to make its guarantee good. As the Railroads Securities Commission said in its report to President Taft: "We hear much about a reasonable return on capital. A reasonable return is one

which, under honest accounting and responsible management, will attract the amount of investors' money needed for the development of our railway facilities. More than this is an unnecessary public burden; less than this means a check to railway construction and to the development of traffic. . . . If rates are going to be reduced whenever dividends exceed the current rates of interest investors will seek other fields where the hazard is less or the opportunity greater. In no event can we expect railways to be developed merely to pay their owners such a return as they could have obtained by the purchase of investment securities which do not involve the hazards of construction or the risks of operation."

THE Sherman anti-trust law as interpreted by the Supreme Court of the United States in the Standard Oil and American Tobacco Company cases permits reasonable agreements between competing concerns. In an editorial in our issue of March 8, page 412, we called attention to the war which has been raging in the steel wheel market and which has reduced the price of steel wheels to a point where it cannot be kept without throwing some of the competitors into bankruptcy or causing deterioration of the product. Such competition, if long persisted in, means survival of only the strongest concern, and that means monopoly. It would seem that the law ought to be made such that public reasonable agreements to abate cut-throat competition would be clearly legal. While it seems clear that under the decisions mentioned a reasonable agreement by competing concerns to raise and maintain prices would be legal, nobody knows just what kind of an agreement the courts would hold reasonable. The result, therefore, is the same as if all agreements whatever were prohibited. It has been suggested that an interstate trade commission should be created to regulate industrial concerns much as the Interstate Commerce Commission now regulates railways. The railways have never been specifically authorized by law to make agreements to maintain rates, either reasonable or unreasonable, whether under the supervision of the Interstate Commerce Commission or not. But that the roads ought to be permitted to make reasonable agreements, or even contracts, to prevent the cut-throat competition that decimates earnings and at the same time so demoralizes business as to confer no public benefits, is the opinion of practically all competent students of railway economic questions. The same kind of reasoning that leads to this conclusion would lead to the conclusion that industrial concerns ought to be legally authorized to make reasonable, public, properly supervised price agreements, and if an interstate trade commission were organized that body undoubtedly would be the proper one to supervise such agreements. The fact is, that even under existing laws price agreements are made between industrial concerns, just as rate agreements are made between railways. The trouble is that they are not public or properly supervised, and that in consequence they are often unreasonable. If the law specifically permitted reasonable agreements and provided for their supervision by some public body and at the same time prohibited all unreasonable agreements and all secret agreements, whether unreasonable or not, the resulting conditions would be better than they are now, or than they can be made by archaic statutes the meaning of which is not clear and the enforcement of which produces as bad results as their violation.

THE DEMAND FOR ACCURATE CAR WEIGHTS.

THE Interstate Commerce Commission's hearing at Chicago last week on irregularities and discrepancies in the weighing of freight cars and carload freight marks the beginning of a thorough investigation of an important subject. That such an investigation is needed was indicated by the testimony of shippers, railway men and others showing that there are many and wide variations between the stenciled and the actual tare weights of cars and between weights obtained at different weighings of the same cars and loads.

The problem presents more practical difficulties than appear on the surface, and it is far easier to describe conditions that work hardships than to formulate a plan for their correction. These things were made manifest at the hearing. Although one or two witnesses were inclined to try to make it appear that the railways have so contrived their weighing rules and practices as to give the shippers the worst of it, a majority of those who testified refrained from muddying the waters by individual complaints, and seemed actuated only by a desire to assist in a co-operative effort to improve conditions by the application of the most scientific principles practicable in view of the physical conditions which must be met.

In fact, the most comprehensive figures presented demonstrated that the effect of the use of inaccurate weights is not at all one-sided, but is as likely to be a reduction of the railways' earnings as an increase in the shippers' transportation charges. Of the cars weigned by the Western Railway Weighing Association and Inspection Bureau during five months of 1911, 59 per cent. weighed less than the stenciled tare weights, or to the advantage of the shipper, and 41 per cent. weighed more, or to the advantage of the railways. As the figures given were for the winter months, when cars are likely to weigh heavier than at other times, it is quite probable that when the figures for the summer months are completed and filed with the commission the advantage that the shippers have derived from incorrect weights will be further emphasized. That there has been a marked improvement in the accuracy of scale weights in recent years is proved by the statements presented to the commission by Superintendent Dodge of the Western Railway Weighing Association, showing that the number of claims involving weights on lumber was reduced from 61,408 in 1906 to 16,125 in 1911, and that out of 5,709,763 cars weighed in 1911 a check-weighing of 213,464 showed only 8.3 per cent. whose weights varied over 1,000 lb.

The individual shipper, however, is not concerned with averages. No matter how evenly the general effect may be distributed, in the long run the shipper very properly desires the adoption of methods that will not subject him to occasional instances of serious injustice; and it will be the endeavor of the commission to bring such methods into use. It is to the discredit of the railways that they have not done so of their own accord. They have long known of the bad conditions that exist and might have obviated the necessity for an investigation and order by the commission by taking proper action in concert with the shippers. The failure of the roads to do what they know ought to be done is the cause of much of the regulation of which they often complain. Justice requires it to be said, however, that some of the railways have been spending large sums for inspection and supervision to make their scale and weighing methods as accurate as practicable. To adopt the suggestion that has been advanced that the government establish a system of detailed supervision over the weights of the railways would be to impose on the government a difficult and costly task that should be performed by the railways and shippers themselves.

Natural variations in the weights of commodities, and in those of cars due to weather and transportation conditions and to the accumulation of dirt and foreign substances, as well as the impracticability of maintaining scales at all points of loading, are physical factors that must be accepted to a reasonable extent. A more frequent and rigid inspection of scales and a more frequent correction of the stenciled weights of cars would go far to remove the causes of complaints. Furthermore, the rule allowing a variation of 1,000 lb. in the weight of cars without requiring a correction to correspond with a check-weight should be amended to better protect the smaller shippers.

It was testified on several occasions during the hearing that accurate weights cannot be obtained without bringing the car to a stand on the scales and cutting it free from other cars in the train. If this is true it would appear that there is need for an improvement in scale construction, for the uncoupling of cars every time they were weighed would cause very serious delays to traffic. A few days ago the Chicago & North Western brought 750 carloads of live stock into Chicago in one morning. To

weigh these cars while in motion over the scales at the rate of three a minute would require over four hours; and to bring all the cars to a stand and uncouple them would, of course, greatly prolong the delay. Slight inaccuracies in the weights of commodities that are usually weighed while cars are in motion will even themselves up in the long run and will probably do little harm until the scale makers can devise a weighing apparatus conforming more fully to the demands of traffic.

It is probable that many railways have not enough scales properly to handle the volume of traffic. This represents another of the expenditures that most railway men agree should be made—if they had more money to spend. In view, however, of the fact that reasonable accuracy of the weights on which rates are computed is an element of the most vital importance to both railways and shippers, it is probable that in some cases the provision of proper and adequate weighing facilities has been neglected in favor of the provision of other facilities of less real importance.

RAIL BREAKAGE AND WHEEL LOADS.

IN the recent discussion on rail failures the principal reasons given by the manufacturers for the large number of breakages are that the weight of locomotives and cars, and the speeds of express trains, have been increased in a more rapid ratio than the size of the rail section, and they suggest, therefore, that a larger section should be used. No figures or calculations have been presented to sustain these statements, and it is difficult to do so, as they are affected by the conditions assumed, and the maximum stresses in rails are almost indeterminate.

As the great majority of rails do not break, and many of those which do break are defective in some respect, it would seem to be the duty of the manufacturer to turn out a uniform product equal to those rails which do not break under present loads and speeds rather than advocate a larger section. If we have stated the conditions correctly, the only reason for using a larger section would be to provide such a factor of safety as would permit of the continued use of rail steel which is not entirely homogeneous. It may be said, further, that experience with sections larger than 100 lbs., made under present methods of manufacture, does not encourage their use in large quantities.

In considering the changed conditions in railway equipment, which are charged with the responsibility for broken rails, we may take some definite time and compare the present wheel loads and rail sections with those used five years ago. Fifty-ton steel freight cars were used then as now. Heavier steel passenger cars have been introduced, but they are carried on 12 wheels and the average load per wheel is not excessive. The Pacific type locomotive is now generally used on fast trains, and while the total weight of this type is greater than the Atlantic, the load on drivers is carried on six wheels instead of four, and the weight per driver averages less. So far as static wheel loads are concerned, whether for cars or locomotives, it would be difficult to show that there has been any important increase in recent years.

As some prominence has been given to the statement that greater impact is due to the counterbalance in heavy locomotives, the fact should not be overlooked that in the Pacific type a definite unbalanced weight, which is a fraction of the total weight of the engine, is divided by six; while in the Atlantic type it is divided by four, and there is less weight in the counterbalance tending to produce impact than in the engines formerly used for fast express service. All things considered, the claim that present locomotives produce more severe stresses in the rail than those used five years ago does not seem to be sustained, and more substantial reason for the use of a larger rail section should be required before any change is made.

Railway representatives can easily disprove the statement that increased rail breakages are due to increased rail pressures; and the rail maker should be asked to explain why such a large proportion of broken rails, no matter for what cause, show defect in the fracture. Until rail manufacture is so improved that the fracture of broken rails shows solid sound steel, the railways are justified in not admitting that it is almost impossible to make a rail that will endure the present loads and speeds.

When referring to heavy wheel loads and high speeds, we naturally consider the conditions on those lines which operate limited express trains, and on most of these roads the 100-lb. rail section is in general use. It can be shown that the unit stress in this rail is less than in the smaller sections which were used with lighter equipment and which did not break after several years.

The gradual increase in the average weight of rolling equipment has been accompanied by an increase in the rail section. It is difficult to determine how closely these conditions have been adjusted, and the results of any calculation depend largely on the assumption taken to represent locomotive and rail practice in any given period. Any increase in wheel load is in direct proportion, while that of the rail section in its resistance to breakage is in proportion to the modulus of the section. A comparison of the increase of rail sections in this period may be made between the 80-lb. and 90-lb. sections, or between the 85-lb. and 100-lb. sections. Taking the latter, we find the 100-lb. A. R. A. "A" section has a section modulus of the head of 15.04, and of the base 17.78. As this type of rail was not in use five years ago we may take for the 85-lb. section, that of the Pennsylvania Railroad, with section modulus of head of 10.7 and of base, 11.25; or the P. H. Dudley 85-lb. section with section modulus of head of 11.46 and of base, 11.76. We have, then, an increase of 40 per cent. in section modulus in the head and 55 per cent. in the base. If the strength of the steel is the same in each section there is an increase of about 50 per cent. in the resistance to transverse breakage in the 100-lb. rail. Is it reasonable, therefore, to require the railways at a large expense to make a still further increase in the size of the rail section? The available evidence does not seem to prove that it is.

While there may be improvements in the track structure apart from the rail, which will help to reduce the number of rail failures, the conditions of equipment which are held responsible for this increase seem unlikely to be changed, and some factor of safety must be allowed for the increased stresses due to defective rolling stock. There is no excuse for the running of defective equipment on the track and it must be prevented wherever possible, but even with the best supervision, flat wheels or unbalanced locomotives will get on the track occasionally. It has been pointed out that wheels out of round, and slid flat or shelled-out wheels, increase the normal loads, as the application is then in the form of a blow and there is an increased stress in the rail due to impact. The magnitude of such stresses cannot be accurately measured and a factor of safety must be provided.

While there has been no material increase in the schedules of fast trains in recent years, there is an important matter connected with rail breakage and high speed, where the railways can effect a decided reform, and that is in a better control of speed. Until rail manufacture has been considerably improved, it would be better to make slower schedules in very cold weather than numerous roads do and require a more uniform speed for all fast trains, and very high speeds making up time on level or down grades should not be permitted.

THE RAILWAY LABOR SITUATION. V.*

THERE are some phases of the accident record of the railways of the United States that are open to controversy. There are some other vitally important points about it, however, which are not open to discussion. Some of these are:

First, while the record is improving, there is no question that it is bad, and that it is not improving fast enough.

Second, while a majority of all the persons killed are trespassers, the next largest number killed, and a very large majority of all injured, are railway employees, and, therefore, employees have the strongest reason for desiring to see the accident record reduced, and for doing all they can to reduce it.

Third, the railway managements and employees are responsible

*Previous editorials in this series have dealt with the following subjects: Co-operation between railways and employees, February 2, page 189; labor unionism and the railways, February 16, page 268; railway labor and efficiency methods, March 1, page 367; arbitration of railway labor disputes, March 15, page 464. The present editorial deals with the need for co-operation between railways and employees for the reduction of accidents.

for a great majority of accidents, excluding those to trespassers, because the indisputable records show that most of them are preventable, and some person or persons must be responsible for every accident that could have been prevented.

Fourth, the main thing that is needed to make the accident record of the railways of the United States defensible is to reduce it; and if managements and employees do not voluntarily better perform their respective duties of trying to reduce it, there will be increased legislation by the state and federal governments to promote safety; and this legislation will, as the public authorities become better acquainted with the facts, be extended to employees as well as to employers.

In view of the above stated patent facts, the past and present attitude of many railway managements, but more especially of railway employees, toward the subject of accidents is hard to understand and impossible to defend. The problem of accidents imperatively demands intelligent, frank, vigorous co-operation between managements and employees; and such co-operation has in the past been conspicuously wanting.

The railway employees who are concerned with the operation of trains are organized into labor brotherhoods which are coextensive with, and even extend beyond, the boundaries of the United States, and which are composed of local units that are to be found on every railway system. As these classes of employees are the worst sufferers from accidents, and as they have the best opportunity of any class of employees to reduce them, one would think that not only the natural dictates of humanity but also the natural dictates of self-preservation would cause them individually, and also through their local and national organizations, to exert themselves in every possible way to reduce the hazards to patrons of the railways, to their fellow employees and to themselves. When an employee joins one of the brotherhoods he is solemnly enjoined as to his duty to exercise care in his work, and also to instruct and caution his fellow employees in the interests of safety. The brotherhoods maintain insurance funds, and have therefore a direct pecuniary reason for promoting safety. Nevertheless many employees concerned in the operation of trains are careless and reckless, as the incontrovertible facts about innumerable accidents demonstrate, and their organizations have done almost nothing to promote safety except to agitate for legislation to regulate the railways. They have interfered, and often successfully, with the administration of discipline when their members have violated the rules of the railways, thereby encouraging a spirit that nullifies the best rules and the provision of the best equipment, and they have then gone to state legislatures and Congress and sought legislation to compel the railways to spend money to prevent the consequences of the spirit thus developed. This course has been persevered in in spite of the fact—a fact which the leaders of the brotherhoods must know if they study the reports and statistics regarding accidents—that if every automatic safety device which human ingenuity could invent and money could buy were adopted by the railways, a great majority of the fatalities to passengers and employees which now occur would continue to take place. No number of automatic devices, and no amount of legislation requiring them, will make good the deficiencies of the human element, which is mainly responsible for accidents in American railways.

We hear a great deal of denunciation in these days from a certain class of politicians directed against those who "put the dollar above the man." If ever there was a flagrant example of putting the dollar above the man it has been presented by the railway labor organizations who for years have struggled incessantly to get ever higher wages for their members—already among the highest paid labor in the world—and who at the same time have absolutely failed to do anything to educate or influence their members in ways that would tend to reduce the fatal accidents to them and to railway passengers. If the accident record of the railways of the United States is a severe indictment of railway management in this country, it is an even worse indictment of the railway labor brotherhoods and their leaders.

And it is a severe indictment of railway management. The operating executives of the railways for years have recognized the need for a more rapid installation of block signal systems, but, largely for financial reasons, which were convincing at least to those who hold railway purse strings, the increase in mileage operated under the space interval system has been inadequate. A large majority of railway, mechanical and operating officers recognized the need for strict compliance with the M. C. B. specifications for safety appliances, but enough roads disregarded those specifications to convince the Interstate Commerce Commission and Congress of the need for legislation to empower the commission to specify the appliances that should be used; and it was passed. Many railway managers long have recognized the need for the adoption of limitations on the speed of trains on track that is not strong enough for heavy modern equipment when hauled at high speeds, but owing to the competitive rivalries which often cause more consideration to be given to the amount of business a road gains than to the safety with which it handles it, agreements to keep speeds within proper limits have been too infrequently made, and when made have usually been shortlived. There long has been complaint from operating officers that they are unable to enforce the discipline necessary to stop accidents, because when they attempt to do so they meet with opposition from the labor unions—opposition before which, when it threatens to lead to strikes, the managements often yield. Unable to enforce proper discipline, the managements of many roads have failed to seek, or at least to find, any substitute for it.

And thus the accidents that the railways are responsible for, those that the employees are responsible for, and those that they are jointly responsible for, continue.

The welfare of the employees, of the railways and of the public forbid that the present condition shall be allowed longer to exist. The accident situation is in some ways similar to that in respect to rebating which existed some years ago. The railway managements had struggled to reduce rebating and made substantial progress, but, nevertheless, it went on. The public grew more and more exasperated; and when the legislation that struck down rebating did come it was not confined to rebating, but, because of the public exasperation rebating had produced, embraced a large number of other subjects. Similarly, unless really comprehensive and effective measures are adopted to reduce accidents, it is but a matter of time until drastic legislation will be adopted to reduce them; and when it comes, if come it does, it will include many provisions that railway managers and employees do not now anticipate—one which probably will be a clause making it a criminal offense punishable by imprisonment for employees to violate rules and regulations of the companies, whether an accident results or not.

In the circumstances it seems clear that, as they both have a weighty duty and responsibility in the premises, it behooves railway managers and employees to adopt some means for the reduction of accidents. Real co-operation for this purpose has begun with the safety committees that have been organized on a number of roads. Why should not the principle on which they are based be carried further, and a nation-wide co-operative campaign by the road and their employees be carried on to reduce accidents? A few years ago, when railway earnings were seriously menaced by agitations for the reduction of rates, the roads and their employees united in the organization of the Railroad Employees' and Investors' Association, whose purpose is to serve as a medium for co-operation between the managements and employees in repelling attacks on railway earnings. Why should not the railways and the railway brotherhoods form a similar joint organization to make investigations, to do educational work and to promote wise legislation regarding accidents? That it is to the mutual interest of the managements and the employees to reduce accidents is too obvious for argu-

ment. That accidents could best be reduced by co-operative action between them seems equally as sure. Why, then, should they continue to work at cross purposes as they are doing now?

The American Railway Association has been criticized because, in the days when rebating was general, and public sentiment was becoming more and more incensed against that practice, this organization did nothing to stop it. Defenders of the association have replied that it was and is purely an operating organization, and therefore had nothing to do with the traffic problem of rebating. The accident problem is purely an operating problem. Therefore, dealing with it clearly falls within the province of the American Railway Association. As a requisite for creating a more favorable public opinion toward railways, the reduction of accidents now occupies the position of foremost importance held a few years ago by the abolition of secret rebating. Are the railways going to take it up with the intelligence and energy that they ought to, and exhaust every resource in efforts to solve it, or are they going to palter with it, as they paltered with the problem of rebating, until the government shall extend regulations over railway operation as it has over railway traffic? More particularly, has the American Railway Association the intelligence and the courage to tackle this purely operating problem squarely and effectively?

The time has come for the railways, as a body, to act in regard to accidents as they never have in the past. The proper agency for them to act through is the American Railway Association. The time has come for employees to act in regard to accidents. The proper agencies for them to act through are their powerful brotherhoods. Will they take up this vitally important problem and solve it?

NEW BOOKS.

Engineering as a Vocation. By Ernest McCullough, C.E. Published by David Williams Company, New York. 5½ in. x 8 in. 201 pages. Cloth. **Price, $1.00.**

This book, which is prepared primarily for those considering the engineering profession as a vocation, brings out a side of the profession not commonly dwelt upon. Because of the more or less romantic features pictured in the popular magazines as typical of the life of the modern engineer, a quite erroneous idea of their work is sometimes given. The author tries to disillusion the prospective engineer so that he may see more clearly what is before him before he devotes his time and money to getting an engineering education. While much of the discussion of the profession and of methods of teaching will not be new to the experienced engineer or engineering college graduate, it should be helpful to those unfamiliar with the work and desiring information regarding it before entering college. In some portions of the book the writer's tone is quite pessimistic, as he discusses the less favorable features of the engineer's career, while in others he shows his deep interest in the profession. While adding but little to the knowledge of the profession as a whole, the book should be of assistance to prospective and embryo engineers; and this is its purpose.

Proceedings of the Forty-Fifth Annual Convention of the Master Car Builders' Association, held at Atlantic City, N. J., June, 1911. 800 pages. Cloth. Published by the association, J. W. Taylor, secretary, 390 Old Colony building, Chicago. Price, $7.50.

Beyond doubt there is no association in the mechanical department of railways whose work has as far-reaching and important an effect as the Master Car Builders' Association. Each convention makes distinct progress in some important particular, as well as many improvements in minor affairs. Probably the most important work done at the last convention was in connection with the new design of coupler and of the action on safety appliances. This volume contains the full account of the reports and discussions, as well as the standards of the association, list of members, committees to report in 1912, constitution, by-laws, etc.

Letters to the Editor.

AN INTERLINE HOME ROUTE CARD.

Bainbridge, Ga., March 19, 1912.

To the Editor of the Railway Age Gazette:

In order to avoid a great deal of the unnecessary empty car mileage that is being made on every railway in the country, why would not an interline home route card be of assistance?

By this I mean a card so made up as to show all junction movements, giving the initials of the road from which cars are received, junction point and date. A card of the same size as the ordinary home route card as used by most lines would provide space for about forty interchange movements. If after using both sides of the card the car had not returned to the home road an additional card could be securely fastened to the first card and numbered No. 2, etc.

It would, of course, be necessary for the card to accompany the car at all times, loaded or empty, from the time it left its owning line until its return.

Take, for example, a car belonging to the Southern delivered by the Pennsylvania Railroad to the Lehigh Valley at Jersey City and in turn delivered by the Lehigh Valley to the Delaware, Lackawanna & Western at Buffalo and by the Delaware, Lackawanna & Western to the Lehigh Valley at Wilkesbarre. Under the present arrangement, each time this car was delivered at a junction, that junction would make up a local home route card, showing the car home-routed through that junction to the connecting line from which it had been received and in order to get the car home it would have to be returned to the Delaware, Lackawanna & Western at Wilkesbarre and by it carried to Buffalo and then again delivered to the Lehigh Valley which would carry the car to Jersey City, carrying it through Wilkesbarre, and delivering to the Pennsylvania Railroad at Jersey City.

The interline home route card, if used, would show the following:

From	To	Junction	Date
P. R. R.	L. V.	Jersey City	.....
L. V.	D. L. & W.	Buffalo	.....
D. L. & W.	L. V.	Wilkesbarre	.....

When the car was started home from the Lehigh Valley after its receipt from the Delaware, Lackawanna & Western at Wilkesbarre, it would readily be seen from the interline home route card that it originally came from the Pennsylvania Railroad at Jersey City to the Lehigh Valley and the Lehigh Valley would take it to Jersey City instead of delivering it to the Delaware, Lackawanna & Western at Wilkesbarre, thereby saving the haul for the Delaware, Lackawanna & Western from Wilkesbarre to Buffalo and for itself from Buffalo through Wilkesbarre to Jersey City. This would not only save considerable unnecessary mileage but would also save delay to the car.

There are numberless cases where cars are shunted back and forth between lines for weeks and months at a time where it is necessary to call on the car record office for a home route that would be avoided by the use of an interline home route card, as the card would show on the face the full home route.

In order to derive any benefits from such a card it would be necessary for the American Railway Association to adopt a rule requiring all cars offered in interchange to be accompanied by an interline home route card and authorizing a road to refuse to accept cars unless accompanied by such a card, except when car is delivered by the owning road.

This is not intended to be a perfect system, and there are of course some objections to it, such as the possibility of cards being lost and inability to keep up with cards for cars placed at blind sidings.

I find that the percentage of home route cards that are removed from the sides of cars left at blind sidings is too small to mention, and while it is true that some cards would be lost. I

think a rule requiring the road losing the card to be responsible for the per diem on it until it can get the necessary data from the owning line to make up a duplicate card would largely overcome the losing of cards.

Such a card as this would also help to prevent the diversion of equipment, as there would be no excuse for the party loading it to say that he did not know how it was routed beyond his line. The interline home route card would show this.

I do not offer this as a solution of the unnecessary and expensive empty car haul, but I do believe that it will very largely better the situation.

S. J. JONES,
Superintendent Transportation, Georgia, Florida & Alabama.

COLLISIONS WHERE "19" ORDERS ARE USED.

HOUSTON, Tex., March 30, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Referring to the article in your issue of March 8, page 418, advocating the exclusive use of form 19 for train orders, the superintendents of the "Sunset Central Lines" are unanimously of the opinion that there are serious objections to the 19 form on single track, except in block signal territory; for there is considerable risk of collision at stations where 19 orders are delivered.

To make it effective, the train order signal, when displayed for a 19 order should authorize the train to which it is given to proceed on main line and take the order running. This is likely to result, and has resulted, in collisions at stations. To illustrate: A heavy freight is running from W. to A. B. C., etc. The despatcher expects this train to make B for an opposing superior train. He wishes to give it a 19 order at A concerning some other trains. After the order is put out the despatcher is busy on some other work; the inferior train loses some time and should take siding at A for the opposing superior train. As the inferior train approaches A, the operator, who is not calculating on the opposing superior train, or may not know about it, gives the 19 train order signal indication which means "Proceed on main line and take order running." The engineman does so and by the time he finds out that the order gives him nothing on the opposing superior train, it is too late to avert a collision.

There are various situations that may arise in single track operation making it risky to deliver a 19 order running. It is true that the 19 order is valuable to move trains that are standing; this in cases where, to require the conductor to come to the telegraph office and sign a 31 order would consume so much time as to prevent the movement against the opposing superior train; and of course there is an advantage in not stopping heavy freight trains for orders.

A rule whereby the despatcher controls the giving of a 19 order signal, before or after a certain time, renders the delivery less risky. To illustrate: The despatcher has a heavy freight that he expects to make B for an opposing train due at B at 11:30 a. m. He wants to deliver the freight a 19 order at B. If the freight makes B he does not want the 19 order signal given, but in event the freight does not make B and lays back at A for opposing train, then he wants the 19 order signal given so as not to stop the train at B. To control this, he completes the 19 order on operator's signature and adds after the word "complete"—"Block until 11:30 a. m.," which the rules provide would be written on the order. This would mean to hold the train order signal at block for the delivery of that order until 11:30 a. m.; but after that time to display the 19 order signal.

Another illustration: Despatcher expects a freight to make B by 11:50 a. m. for an opposing superior train, but at the time he puts order out at 11:15 a. m., it is not certain that it will make B. He figures that the freight must pass A by 11:30 a. m. to be able to make B by 11:50 a. m.; so, after the word "complete" he adds, "Block after 11:30 a. m." This would permit the 19 order signal until 11:30 a. m. After that the operator would hold the signal at Block and deliver the order after the train had stopped.

Another illustration: Two freights, No. 243 and 244 have orders to meet at A. Despatcher wants to get 243 to B for No. 10. He does not want to stop 243 at A, provided 244 is in to clear, before 243 arrives, so he gives operator at A a 19 order for 243, helping it on No. 10, and after "complete" adds, "Block until 244 is in to clear."

T. FAY.

SIMPLICITY AND SUCCESS OF THE DEMURRAGE RULES.

PHILADELPHIA, Pa., March 29, 1912.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I note a letter in your issue of today, page 742, from "C. H. M.," of Hartford, Conn., in reference to the "Usefulness of Demurrage Adjusters." He speaks of car demurrage as "this penalty-inflicting business, requiring most delicate diplomacy." The point of view undertaken by this language is not uncommon, but it indicates an entire misconception in regard to the nature of demurrage charges. A demurrage charge is not a penalty or an exaction. It is a charge for the use, not only of the car which is held by the consignee for storage, but of the track occupied by the car, and for the additional shifting and consequent delays due to the fact that the car is held for the convenience of the consignee. The rules governing car demurrage were formulated by the Interstate Commerce Commission after most exhaustive investigation and full discussion, in which not only the railway companies, but shippers participated.

These rules are simple, explicit and readily understood; and the payments on account of them are due precisely as freight charges, or any other charge collected in the ordinary transaction of railway business. Since the date when these rules were issued by the I. C. C. they have had the effect of law, and the collection of charges under them is as much a part of the duty of a railway company as any other freight charges for which tariffs are filed.

No delicate diplomacy is necessary, the facts in any case being readily discoverable and the results being fixed absolutely by the rule themselves. To interpose between the railway companies and their customers a demurrage adjuster or other agent would be as unnecessary as it would be to have all freight charges collected through a collection agency, or a bank; or as to submit questions of the proper wages of employees to the determination of the I. C. C., as has recently been suggested.

There are but two cases in the rules that can give rise to any question as between the railway company and the consignee, omitting of course railway errors, which will occur, but which invariably are promptly adjusted. I refer to "weather interference" and "bunching." If C. H. M. will familiarize himself with the rules, he will note that all shippers or receivers accepting the average agreement, provided for therein, in that agreement, stipulate that they shall not be entitled to any refund on account either of weather interference or bunching. All shippers of any considerable amount do accept the average agreement, thereby eliminating all questions of disagreement that can arise. Experience also shows that those working under the average agreement practically eliminate the demurrage charges, as the rules are favorable to the large shipper, excepting only in the case of one who undertakes to handle a volume of traffic greatly in excess of his capacity for storage when, necessarily, demurrage charges accrue.

Our experience is that since the I. C. C. rules have been in effect the rules have been enforcd with absolute impartiality, in territory much of it highly competitive. Shippers and consignees have adjusted their business to the rules, and the expense of collection, since the abolition of the car demurrage bureaus, has been greatly reduced, and complaints in regard to charges from consignees are very infrequent. Today the railway agents and their customers are in close touch, resulting in a better understanding and much less friction than under previously existing conditions.

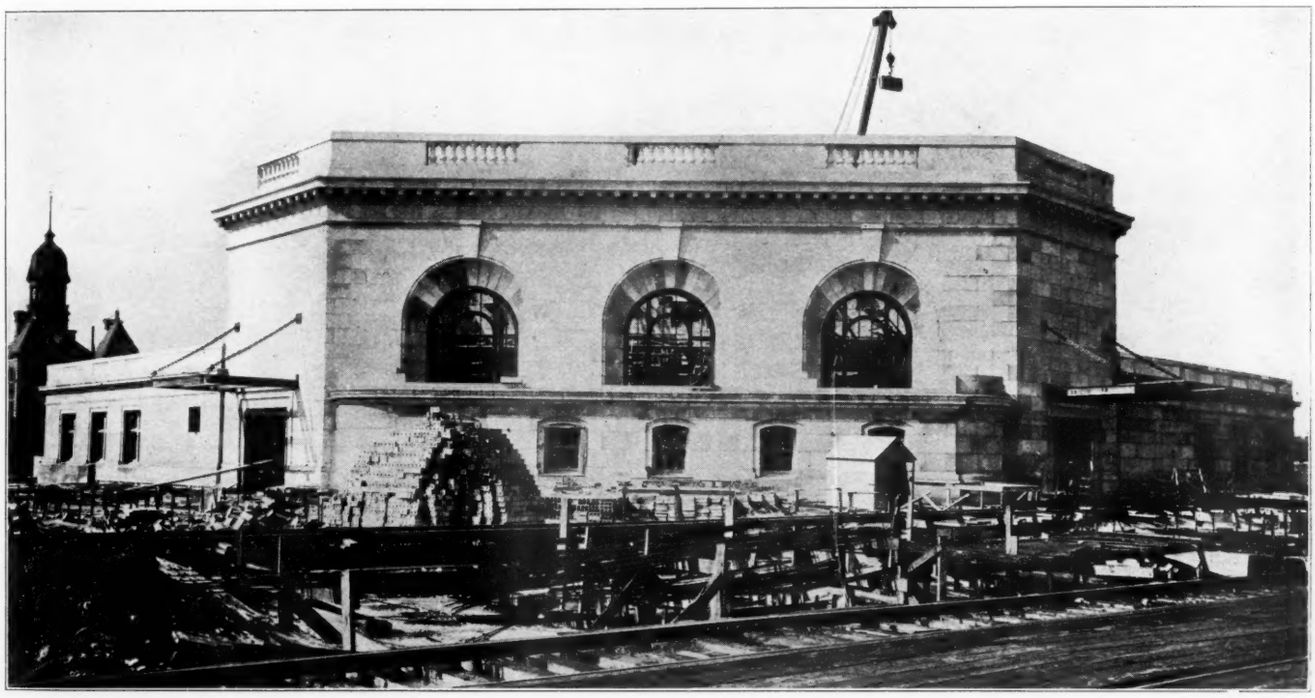
THEODORE VOORHEES.

UNION STATION AND GRADE SEPARATION IN JOLIET.

The Extensive Work Involved in Elevating Tracks and Providing Facilities for Increased Passenger Business.

The four roads handling passenger traffic at Joliet, Ill., are now completing the elevation of their tracks through this city and are building a union passenger station which in many ways is unusual for such a structure. The city has a population of about 35,000, but on account of its location near Chicago and the number of important industries located in it, the passenger traffic is heavier than for most cities of equal size. The building was designed to provide ample accommodations for the traffic that is expected to develop during its life, and considerable care was given to the securing of pleasing architectural effects in its general construction and of unusual features in the interior finish and equipment. The cost of the station completely furnished is estimated at about $260,000.

The Chicago, Rock Island & Pacific and the Michigan Central use jointly a four-track line running approximately east and west and crossing a joint four-track line of the Chicago & Alton and the Atchison, Topeka & Santa Fe at an angle of about 80 deg. The alinement of the Rock Island and Michigan Central had to be changed for some distance and some radical changes on the Alton and Santa Fe were also made to secure this arrangement in connection with the general work of separating grades throughout the business district which has been under way for some time. The Alton and Santa Fe tracks are on a tangent at the station and the Rock Island-Michigan Central tracks are on a 1 deg. 6 min. curve. The track spacing between the two passenger tracks adjoining the station is 28 ft. for the north and south line and 26 ft. for the east and west line, with island platforms between the tracks in both cases. The station is located in the obtuse intersection angle towards the principal business district.



Joliet Union Station, from Tracks, as It Appeared March 1.

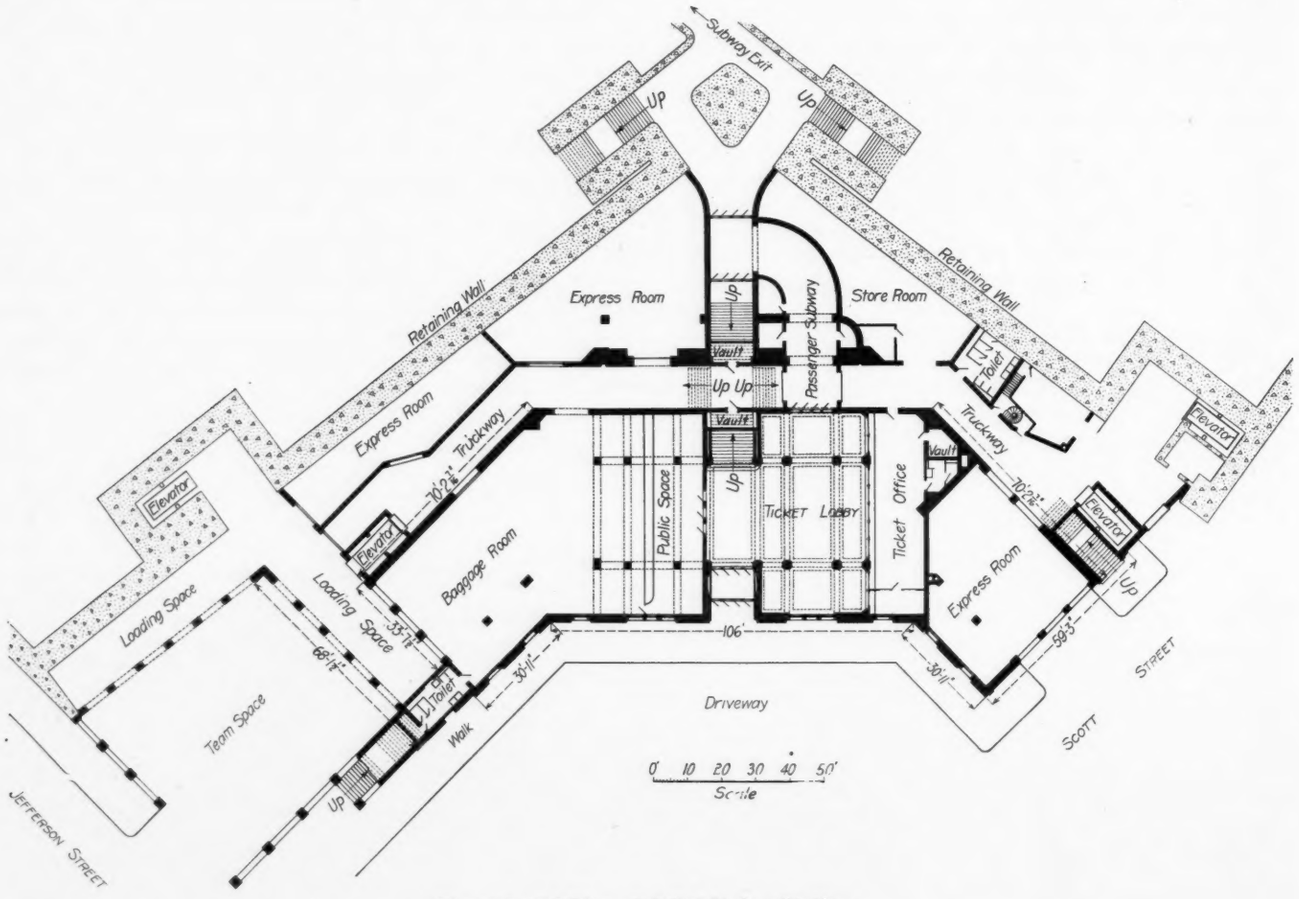
THE STATION BUILDING.

The elevation of the tracks allowed the design of a two-story station with facilities for the transaction of all business incident to travel on the street level and waiting rooms on the track level. The building is faced with blue Bedford stone laid in ashlar masonry and backed with brick. The foundations are of concrete, and some of the columns up to the first floor are steel. The roof is slate carried on steel trusses spanning the main waiting room and supported on brick piers. The area included between the station and Scott and Jefferson streets will be laid out in a small park, with driveways leading to the teaming space, and concrete sidewalks leading to the station entrances. The main entrance is directly in the center of the building opposite the tracks, and auxiliary entrances are provided by stairways at each corner of the building leading to the track level platforms.

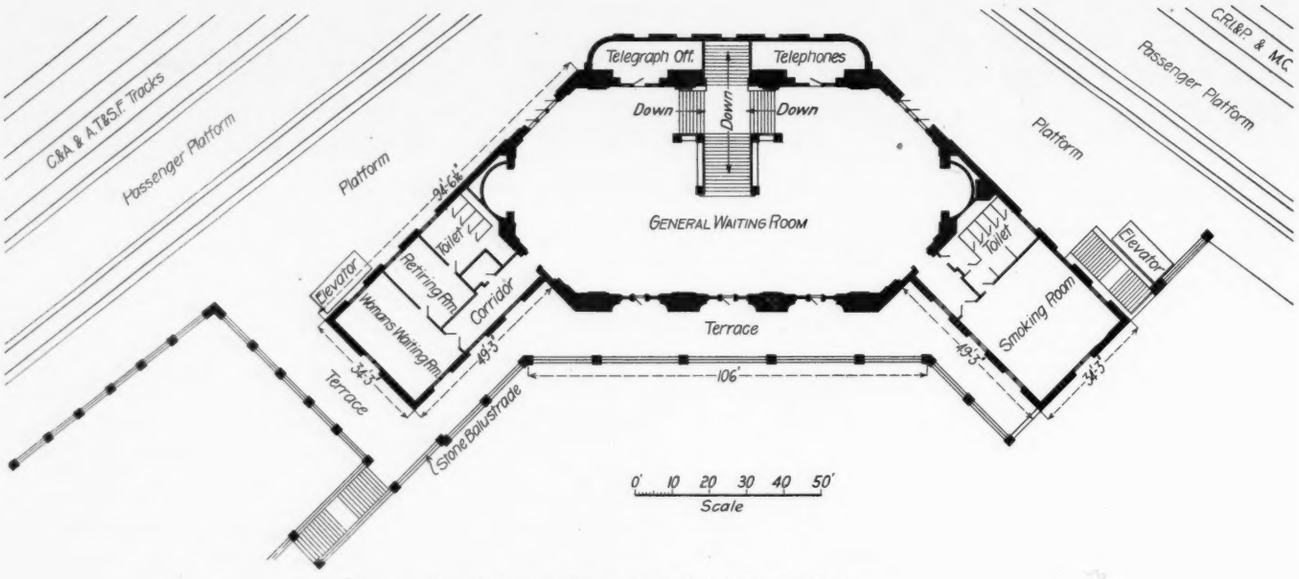
To the right of the main entrance on the lower floor is a ticket lobby about 32 ft. x 57 ft., with a ticket counter along one side. This lobby is finished with terra cotta walls and columns, ornamental plaster ceiling and tile floor. Directly in front of the entrance is a marble stairway leading to the main waiting room above, and to the left is a public space adjoining the baggage counter. A passenger subway leads from the end of the ticket lobby at the right of the main stairway under the tracks to the stairways connecting with the island platforms. This feature will be especially useful for patrons of the Rock Island suburban service to Chicago, allowing quick access to trains without passing through the waiting rooms. The walls of this subway are faced with light brick set in red mortar, the ceiling being of plaster and the floor of tile. Prismatic lights are set in the platform above to provide daylight lighting. The remaining space on the lower floor is occupied principally by express and baggage rooms and truck-ways. A large teaming space paved with creosoted blocks is provided at one end of the building, serving the baggage room and two express rooms, and another driveway provides access directly to the third express room at the other end of the building. All three express companies occupying quarters in the station except to make these offices important points for interchange business, and at least one of them will discontinue its present downtown office. The facilities for handling express business have been carefully worked out. Special racks for iced shipments over large drains in the floor are a feature of these rooms. Scale pits are provided at convenient points for weighing pack-

ages, and two elevators at each corner serve the track platforms above. Three vaults are provided, two for the use of the express companies and one in the ticket office. The floors in the baggage and express rooms are wood and in truck-ways concrete; the a hopper in Scott street and the ashes hoisted to the truck-way on the street level.

The main waiting room on the second floor is octagonal in shape and about 55 ft. x 110 ft. in size with a vaulted ceiling.



Street Level Plan of Joliet Union Station.



Track Level Plan of Joliet Union Station.

walls are face brick and the ceilings plaster. All columns and exposed corners which might be damaged by trucks are protected by sheet steel 7 ft. high. The boiler room for supplying heat to the building and operating the ventilating system is located below the ground level, the coal being fed down to a storage bin through

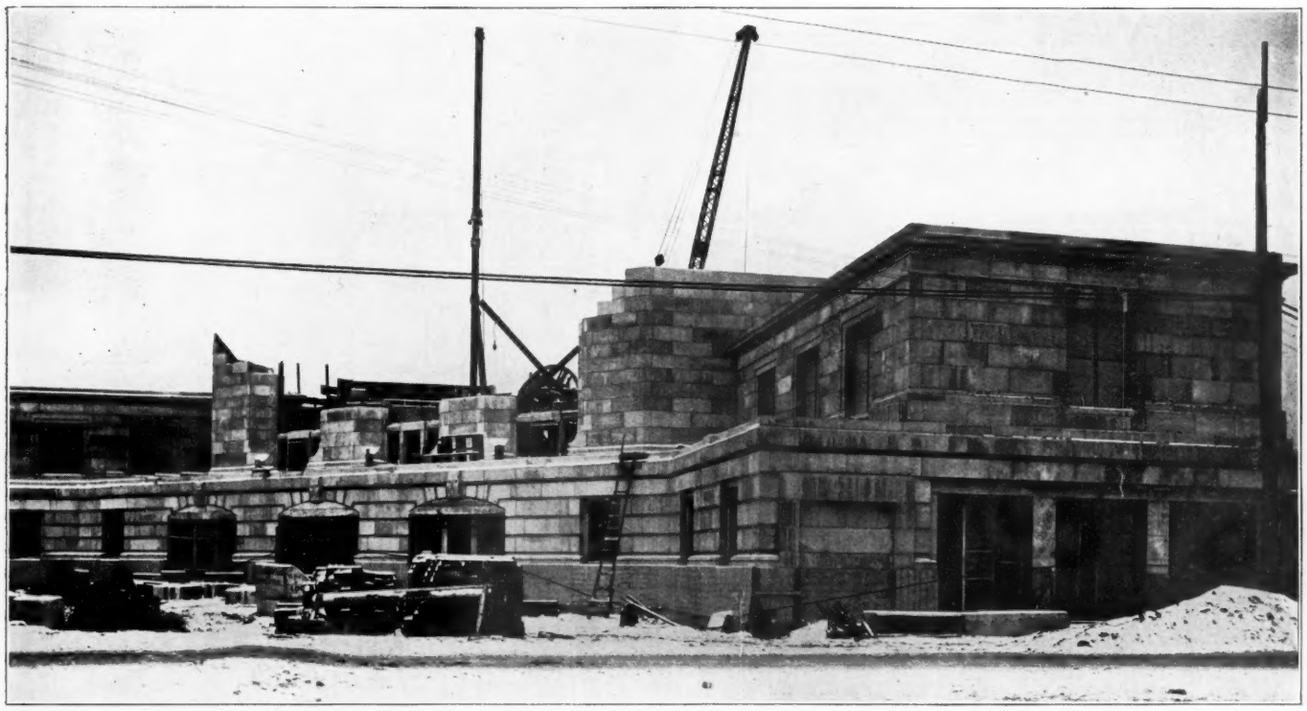
The floor and wainscoting are Tennessee gray marble and the walls are finished in Keene's cement. Telegraph and telephone offices adjoin this waiting room on the track side and the wings of the building are occupied respectively by the women's rooms and the smoking room. The women's waiting room is about 20 ft.

x 32 ft., with a retiring room about 13 ft. x 20 ft., finished with tile floors and marble bases. The smoking room is about 32 ft. square, with tile floor and wainscoting. The woodwork in the waiting rooms is weathered oak, and the furniture is finished in silver gray, particular attention having been paid to securing pleasing effects in the design of the fittings for each room.

The building is fireproof throughout. All wires are encased in sherardized pipe conduit. All steel supporting columns are encased in concrete. The concrete floors are waterproofed with Sarco. All water pipes, wires, ventilating ducts and heating pipes are concealed in the walls or ceilings, suspended ceilings of metal lath being used in some cases to affect this end. Tungsten incandescent lights are used throughout for artificial lighting, bracket lights being used in the waiting rooms and five-light clusters on the platforms. Numerous drinking fountains are located at convenient points, and bulletin boards and other minor details designed to add to the comfort and convenience of patrons are supplied.

The track platforms are of concrete, the one between the building and the nearest track being a concrete slab in design, and the island platforms being laid on cinder fill to allow for settlement in the new sand embankment under the tracks. The island platforms are protected by butterfly canopies. Numerous stairways are provided leading to these platforms from the streets crossed by the tracks, making the station very easy of access from any direction. A terrace of concrete with an ornamental stone balustrade runs around the sides of the station away from the tracks, connecting with the main waiting room, the track platforms and by stairway with the street. To prevent closing Washington street west of the crossing, the retaining wall along the tracks had to be built close to the outside track, and in order to carry the station platform alongside this track it was necessary to build an overhanging reinforced concrete slab platform for the entire length of the block between Scott and Chicago streets.

The work of building the station was in charge of the Joliet Union Station Company, which was organized for that purpose by the four roads interested. J. B. Berry, chief engineer of the Chicago, Rock Island & Pacific, was the representative of the four roads in the construction work, J. B. French being assistant engineer on the ground. Jarvis Hunt was the architect for the building proper and Adam Groth & Company, Joliet, had the general contract. Work on the building was begun about August 15, 1911, and it is expected that it will be completed by May 19, 1912.



Construction View of Joliet Union Station, from Scott Street.

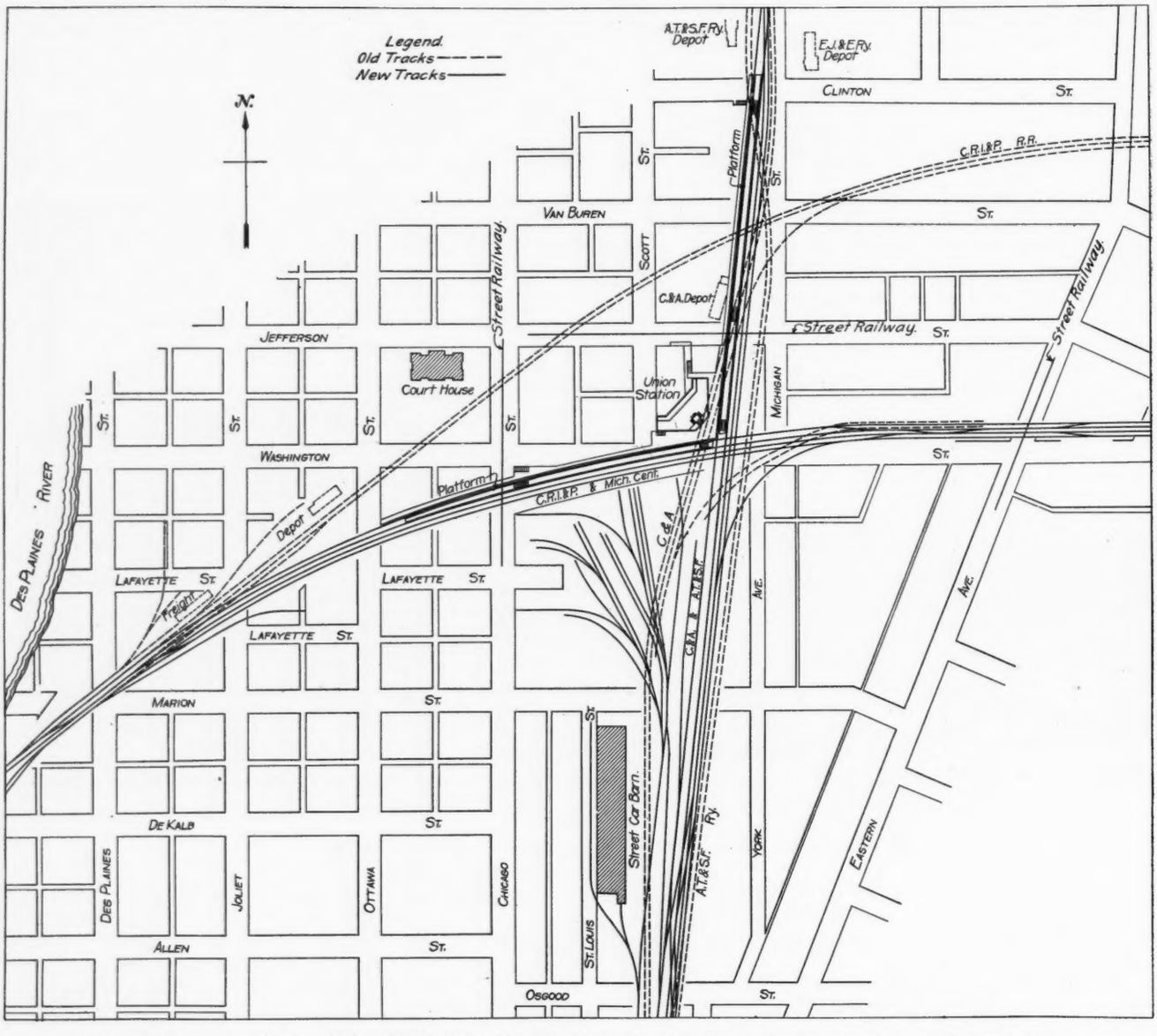
BRIDGE WORK ON ROCK ISLAND-MICHIGAN CENTRAL RELOCATION.

The special features of the relocation of the Rock Island and Michigan Central which enabled those roads to use a joint line were described in the *Railway Age Gazette* of March 16, 1910. At that time, however, little work had been done on the subways and the types of several of them had not yet been decided uopn. Steel construction had been adopted for most of these street crossings, using built-up columns and plate girders with I-beam floors concreted and ballasted. In one type of subway the transverse I-beams in the floors are attached to the webs of the girders, and the entire surface of the bridge above these beams is covered with concrete varying in depth from 5 in. to 8 in. under the tracks and 3 in. over the girders. This slab is reinforced in both directions by bars laid 1½ in. above the tops of the I-beams and by longitudinal bars near the upper surface of the concrete. No. 7 triangular mesh, 58 in. wide, is laid over the tops of the girders to bond together the masses of concrete on each side. The height of the floor beams on the girders is so arranged that the depth of the trough which is formed under each track to retain ballast is just great enough to bring the upper surface of the tie level with the surface of the concrete over the girder, allowing a minimum of 6 in. of ballast under the tie.

In another type of structure the transverse I-beams in the floor are supported by plate and angle connections so that their lower flanges are on the same level as the lower flange of the longitudinal girders. The ends of the floor beams are sheared off diagonally and are connected by two angles to an inclined plate, the upper end of which is riveted to the web of the girder and the lower end of which rests on a plate carried in the lower flange of the girder and to which the lower flange of the I-beams are riveted. This construction is clearly shown in the accompanying cut. Steel plates ½-in. thick and 10 ft. wide are laid on these beams under each track with riveted splices forming a continuous surface to support the ballast. The space between the edges of these plates and the girders is filled with concrete sloped up to the lower edge of the top flange angle. This concrete is bonded

to the steel work by longitudinal angles laid along the edges of the floor plates and by bent bars extending through holes drilled in the webs of the girders about 2 ft. apart, and into the masses of concrete on each side of the girder. Longitudinal and transverse rods are provided for surface reinforcement of this concrete. A waterproofing layer of three-ply burlap mopped with an asphalt mixture was laid, and over this a protecting layer of 2 in. of concrete reinforced with No. 6 wire mesh was laid. On the floor plate a coat of asphalt primer was first brushed on; then a coating of hot asphalt waterproofing was placed with mops; then a heavy coat of asphalt was poured on, and the surface of this was sprinkled with a layer of torpedo sand.

The interchange traffic between the four roads is handled over

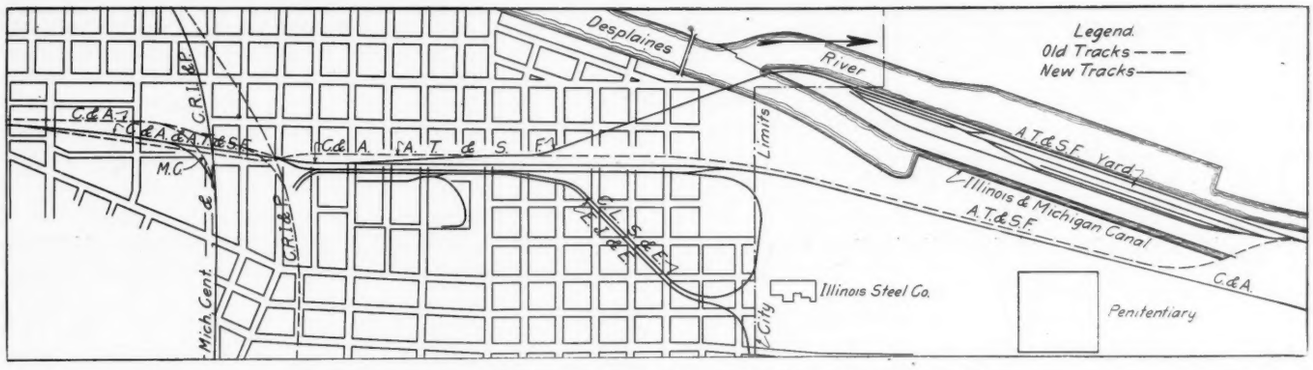


Plan of the Four Railways Using the Joliet Union Station, Showing Track Arrangement on Both Joint Lines.

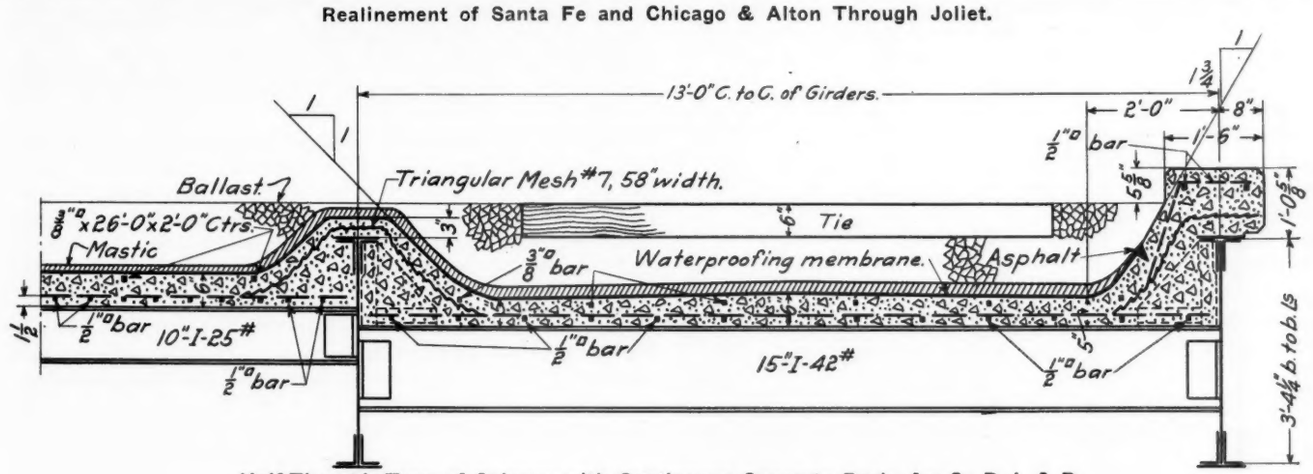
girder connecting the columns in each pier is 2 ft. thick and has a minimum depth of 1 ft. 9 in. over the arches between the columns. The column reinforcement consists of eight 1-in. square rods set vertically and extending from the top of the footing course to the top of the girder, banded by ¼-in. square hoops spaced 1 ft. center to center. The girder is reinforced by eight ¾-in. square bars extending for its full length and banded by ½-in. square bars on 1-ft. centers. Stirrups of ½-in. bars are also provided and ¾-in. bars are set diagonally over the arches to take diagonal shear and bond the girder firmly to the columns.

The slabs which were cast in place have a minimum depth of 3 ft. 3 in. with a crown of 1 in. under the center line of track and with sufficient slope from one end to the other to provide for good drainage, the water being carried away in 2-in. drain pipes which are set in the concrete near the corners of the slab and carried down the ends of the piers to the gutters. The reinforcement in the slabs consists of two sets of longitudinal bars, one in the lower reinforcing plane of 1 in. square bars spaced 3½ in. center to center, three of every four being bent up at the ends to provide diagonal reinforcement, the other in the upper plane of ⅜-in. square bars; two sets of ½-in. square transverse bars in the two plans; and ½-in. stirrups connecting the two sets of longitudinal bars. A 4-ft. walk is carried along one side of the trestle on a cantilever construction built as a part of the

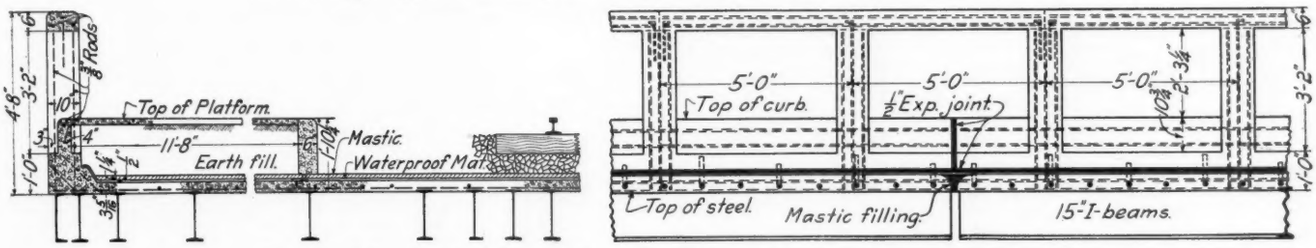
a single track Y connection opposite the station. This track crosses Washington street and York avenue near the intersection of those streets, making it advisable to carry the track on a reinforced concrete trestle. There are eight spans of concrete trestle and three of plate girders, with a concrete ballasted deck, the latter being used over Washington street where the excessive skew made the spans too great to allow the use of concrete. There are four skew and four square piers, the former having four and the latter three columns each. These columns are 1 ft. 8 in. x 2 ft. 6 in. in section, resting on continuous footings under each pier spread to 6 ft. wide and bearing on rock. The cross



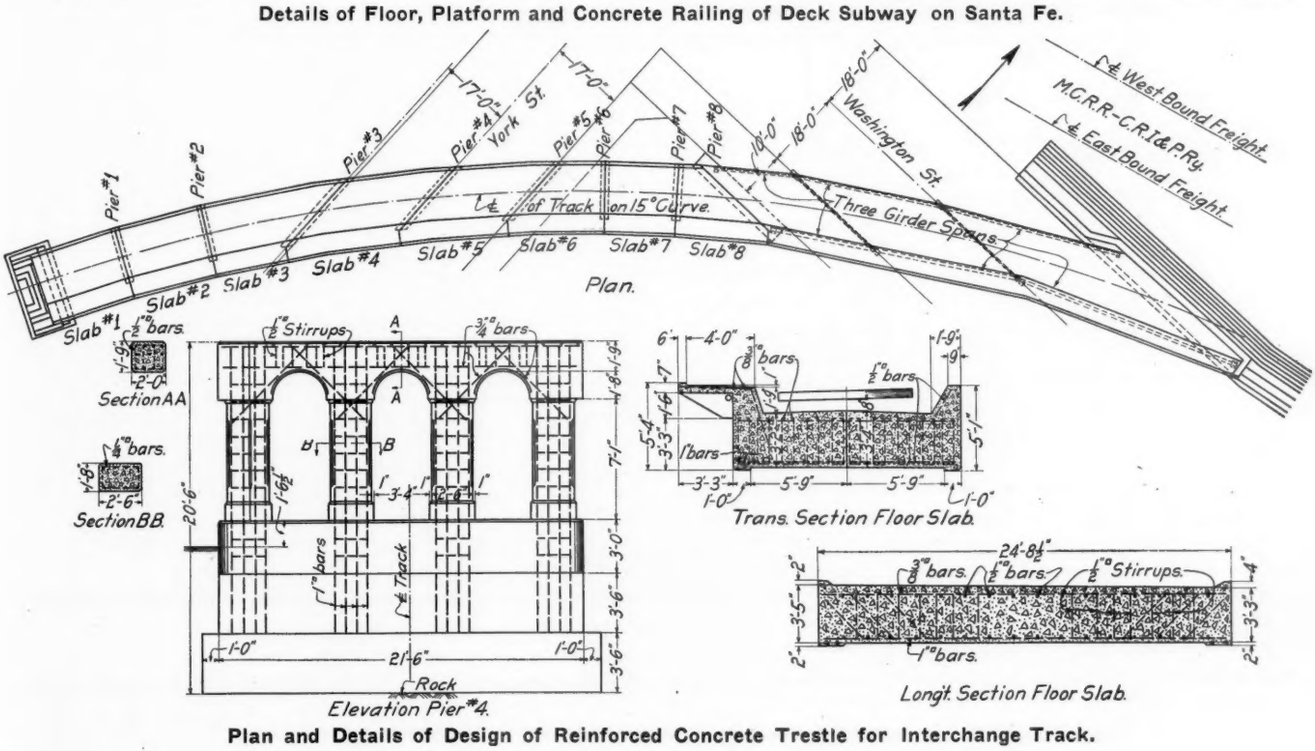
Realinement of Santa Fe and Chicago & Alton Through Joliet.



Half-Through Type of Subway with Continuous Concrete Deck, for C., R. I. & P.



Details of Floor, Platform and Concrete Railing of Deck Subway on Santa Fe.

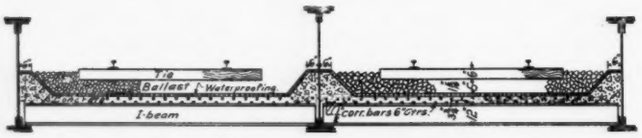


Plan and Details of Design of Reinforced Concrete Trestle for Interchange Track.

slabs. This overhanging sidewalk slab is 5 in. thick reinforced by ⅜-in. square longitudinal bars in two planes and ½-in. square transverse bars which are bent down into the track slab to provide a firm bond. Buttresses 9 in. wide and 1 ft. 6 in. high spaced 6 ft. 6 in. center to center, support this walk. The faces of the slabs are paneled and the corners of columns are chamfered, giving the trestle a neat and finished appearance.

INTERLOCKING.

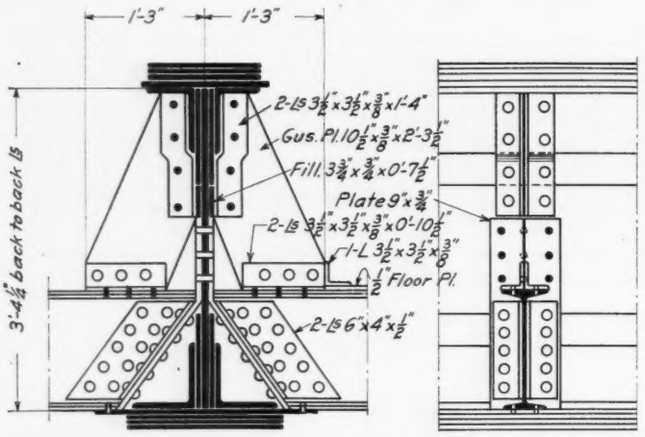
The work on the Alton and Santa Fe involved an extensive



Floor Construction of Through Type Subway, for Chicago & Alton.

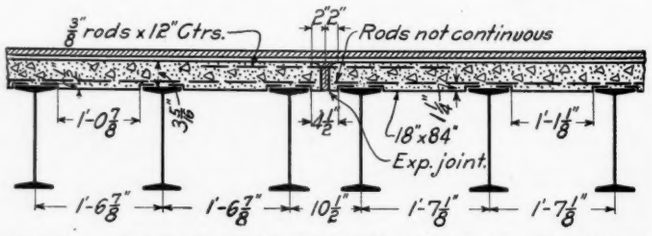
relocation of tracks and buildings by both companies. The two roads previously operated independent double-track lines with a grade crossing near the center of the business district and a separated grade crossing south of the city. The new layout provides for the use of a joint four-track line from Clinton street near the old point of crossing to Osgood street, cross-overs being provided at both ends to allow passenger trains on both roads to use the two tracks adjoining the station and freight trains the two outside tracks.

As it is necessary for all trains to cross over the four tracks at one end or the other in order to cross the other road and leave the joint section on their respective tracks, it will be necessary to interlock all the cross-overs, and it is expected to locate



Detail of Plate and Angle Connection of Floor Beams to Girder in Rock Island Through Type Subway.

one central plant across the Alton-Santa Fe line from the station which will govern movements in all directions on the four main lines and the interchange track. The details of this plant have not yet been worked out, but an electric interlocking machine will probably be installed. Provision is being made in the heating system of the station to run pipes under the tracks to heat the interlocking tower and some connection may be installed between the lighting power supply for the station and the operating power supply of the interlocking plant. Electric power for lighting will be purchased from the local public service company, and plans are being made to connect this supply with an

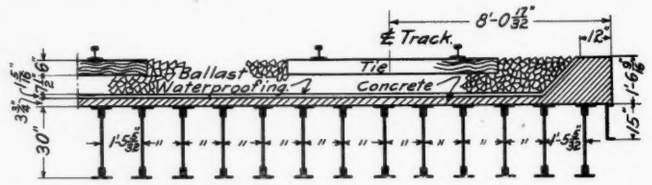


Section of Floor of Santa Fe Deck Subway, Showing Steel Plate Forms for Concrete and Details of Expansion Joint.

auxiliary battery installation in the interlocking plant to supply light for the station in case of a failure of the lighting company. Vitrified clay conduit has been laid for the wires leading to the various functions included within the plant, and reinforced concrete manholes have been built at junction points. The signal departments have co-operated with the construction departments in the designing of most of the structures so that provision is being made in the subway designs and in the interchange traffic trestle for the location of conduits and in some cases derails, signal bridges and other accessories of the interlocking system. In addition to the changes in track it was necessary for the Chicago & Alton to move its freight depot and supply house, tear down an old roundhouse, enlarge its yard at South Joliet about 1.3 miles from Joliet, and build a new 7-stall brick and frame roundhouse at this yard.

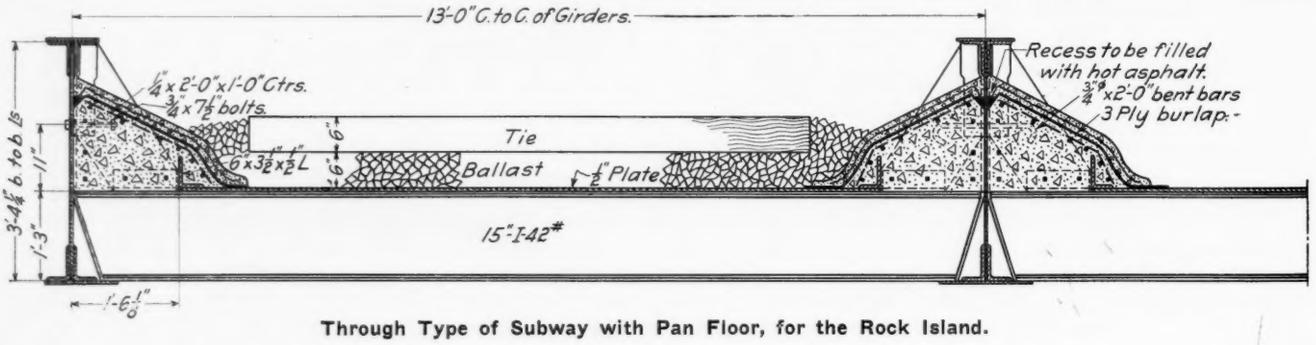
THE ALTON-SANTA FE RECONSTRUCTION.

The principal change made by the Santa Fe was north of the city, where the old line passed through the property of the



Details of Floor on Deck Type Subway with Longitudinal Floor Beams, for Chicago & Alton.

Illinois Steel Company. It was desirable and necessary in connection with the track elevation work to add a second track line through this property and cross the Illinois and Michigan canal. As the additional right of way could not be secured along the existing location the line was revised to cross the canal about a mile further south. The Desplaines river, which is parallel to the canal at this point, was straightened by the Sanitary commission at the same time that a turning basin was dredged in the canal. This improvement made it possible for the Santa Fe to build a



Through Type of Subway with Pan Floor, for the Rock Island.

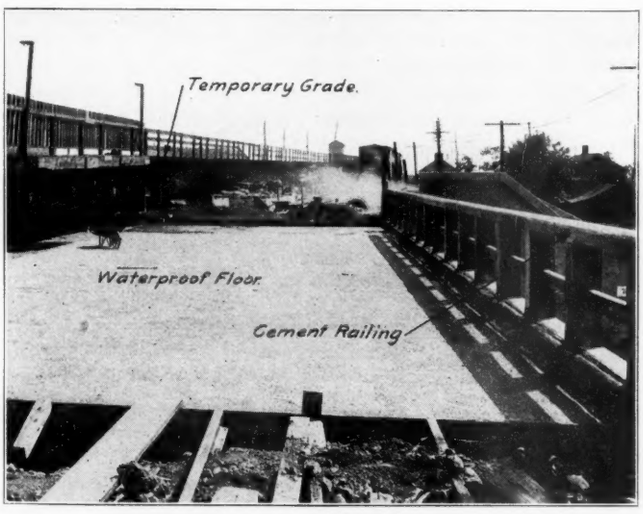
new yard in the territory between the canal and the river channel, giving it a much needed addition to its yardage at Joliet. This revised line, known locally as the "canal line," was built before the work was started adjacent to the new station, but it was done with the general plan in view of elevating tracks through the business and resident districts and was accordingly built to a grade that allowed over-head crossings with the four most important streets.

The Chicago & Alton and Santa Fe joint work was divided

Rock Island-Michigan Central Bridge Over Hickory Creek on the Revised Location.

about opposite the new station and the work of elevating tracks and building the joint subways north of that point was carried on by the Santa Fe and south of that point by the Alton. On the Santa Fe work a double-track trestle was driven as it was necessary to maintain traffic over the tracks being raised. On the south end, however, the Alton was able to divert traffic from its tracks to the Santa Fe during elevation of its tracks and reverse the traffic during the elevation of the Santa Fe tracks. The Santa Fe used gravel for filling which was secured from local pits and the Alton used sand secured at a pit about 20 miles distant. The elevation of the tracks placed the Alton grade about on a level through the city with a short 0.8 approach on the north. As this company's heavy traffic is northbound and the grade is very short this is not a serious operating condition. The Santa Fe has a 0.5 per cent. approach grade on the south to secure which it was necessary to raise the Hickory Creek bridge slightly. Track centers on the Chicago & Alton and joint track are 13 ft. and on the Santa Fe 14 ft. The joint track is laid with 90-lb. A. R. A. A-section rail.

The subways built by the Chicago & Alton are steel structures

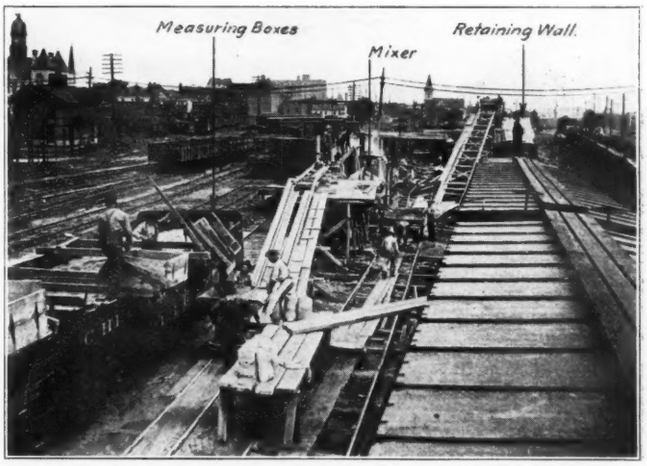


Waterproofing on Santa Fe Deck Subway.

with concrete ballasted floors, some being of the deck and some of the through type. The typical deck structure has transverse girders over the columns on the curb lines, supporting 18-in. I-beams over the sidewalk and 30-in. girders over the street, the spacing in both cases being 1 ft. 5 5/32 in. A 3¼-in. layer of concrete covers this floor, which is waterproofed by a layer of 1 5/16 in. thick Byerlite compound. The through structures have longitudinal girders 54 in. to 60 in. deep between tracks carried directly on the piers and supporting a floor of transverse 12-in. I-beams spaced 16 in. center to center. The concrete layer over these I-beams has a minimum thickness of 3¾ in. and is carried up on the girders to a depth which brings the top of the waterproofing layer level with the top of the tie. The layer of concrete is reinforced by ½-in. corrugated bars spaced 6 in. center to center.

The subways built by the Santa Fe were of two types, through and deck, all having steel piers and steel girder beam decks with continuous ballasted floors. The Jefferson street subway, which is of the deck type, has piers on the curb lines and in the center of the streets. The transverse girders over the columns support 15-in., 42-lb., I-beams on which the concrete floor is laid. Steel sheets are used for forms for this concrete floor, being bent in the field to fit over the upper flanges of the beams and drop ½ in. below the top of these beams between the edges of the flanges. The concrete slab has a thickness of 3 5/16 in. with a 1¼-in. layer of Sarco mastic and three-ply burlap waterproofing. The concrete fence railing is provided along the face of the subway with posts 5 ft. center to center and a 6-in. x 10-in. railing.

In the through girder subways 15-in. 60-lb., I-beams are used for transverse floor beams, the concrete slab on these beams being the same as that described above. The concrete is carried



Concreting Plant for Chicago & Alton Retaining Wall.

up on the girders to form a trough 10 in. deep, which contains the ballast, the concrete being waterproofed in the same manner as the deck type subways.

The original ordinance passed by the city council called for the location of curb piers half on the sidewalk and half in the street or with the center line of pier on the curb line. The representatives of all the roads protested against this feature and various substitute designs were offered, in some cases reinforced concrete subways being proposed. The local aldermen refused to allow any change to be made, however, and most of the subways are built in this way. Several serious accidents have already occurred caused by the hubs of loaded vehicles striking the half of the column which projects into the street.

The joint work of the Michigan Central and Rock Island was handled in the field by G. H. Harris, and later by A. T. Hopkins, assistant engineer, Michigan Central, under the supervision of J. B. Berry, chief engineer of the Chicago Rock Island & Pacific, and G. H. Webb, chief engineer of the Michigan Central. C. A. Morse, chief engineer of the Santa Fe system has general supervision of that company's work, Major G. W. Vaughn being in direct charge. The Chicago & Alton work was carried out under the direction of W. D. Taylor, chief engineer, up to the time of his death, since which E. L. Crugar, assistant chief engineer, has been in charge. R. A. Cook is the assistant engineer on the work.

SPECIFICATIONS FOR STEEL.

At the meeting of the American Society for Testing Materials, held in New York on March 29 and 30, a number of specifications were presented which were voted to be referred to letter ballot for adoption as standards.

Heat Treated Carbon Steel.—The specification for heat-treated carbon steel axles and similar objects requires that the ingot shall be properly cropped and that the axle shall be allowed to cool after forging and before reheating. The chemical composition shall be as follows:

Carbon	Not over 0.60 per cent.
Manganese	0.40 to 0.80 per cent.
Phosphorus	Not over 0.05 per cent.
Sulphur	Not over 0.05 per cent.

Provision should be made for a check analysis. The physical requirements are:

Tensile strength, lbs. per sq. in.	85,000
Elastic limit, lbs. per sq. in.	50,000
Elongation in 2 in., per cent.	22
Reduction of area, per cent.	45

A bending test through 180 deg. is also required. The requirements for specimens are that one tension and one bend test shall be made from each test lot; if more than one melt is represented in a test lot, one tension and one bend test shall be made from each melt. A test lot is defined as consisting of those pieces that are quenched at one time and annealed in the same furnace. The requirements as to marking, inspection and rejection are of the usual character.

Steel Castings.—Steel castings are divided into two classes, one subject to physical tests and one in which none are specified. The chemical requirements for the first class are limited to the phosphorus and sulphur content, neither of which are to be above 0.05 per cent. For the second class the carbon is limited to 0.30 per cent. and the phosphorus to 0.08 per cent., with no restrictions on the sulphur. Check analyses, of course, are provided for.

The steel subject to physical tests may be hard, medium or soft, and the requirements for the three are as follows:

	Hard.	Medium.	Soft.
Tensile strength, lbs. per sq. in.	80,000	70,000	60,000
Yield point, lbs. per sq. in.	36,000	31,500	27,000
Elongation in 2 in., per cent.	15	18	22
Reduction of area, per cent.	20	25	30

Medium castings must bend cold through 90 deg. and soft castings through 120 deg., each over a 1-in. pin. These bending tests may be made by pressure or by blows.

Boiler and Firebox Steel.—For boiler and firebox steel the chemical requirements for the two grades, flange and firebox steel, are:

	Flange.	Firebox.
Phosphorus (acid)	Not over 0.05	Not over 0.04 per cent.
Phosphorus (basic)	Not over 0.04	Not over 0.035 per cent.
Sulphur	Not over 0.05	Not over 0.04 per cent.
Copper		Not over 0.05 per cent.
Manganese	0.30 to 0.60	0.30 to 0.50 per cent.
Carbon		0.12 to 0.35 per cent.

The physical properties are to be as follows:

	Flange.	Firebox.
Tensile strength, lbs. per sq. in.	55,000 to 65,000	52,000 to 62,000
Yield point, lbs. per sq. in.	0.5 tensile str.	0.5 tensile str.
Elongation in 8 in., per cent.	$\frac{1{,}500{,}000}{\text{Tensile str.}}$	$\frac{1{,}500{,}000}{\text{Tensile str.}}$

The preparation of a specimen for a quench bend test shall consist of heating it to a light cherry red as seen in the dark (not less than 1,200 deg. Fahr.) and quenching in water, the temperature of which is between 80 deg. and 90 deg. Fahr. The specimens for cold and quench bend tests shall bend through 180 deg. without fracture on the outside. The other requirements are of the usual character as to allowable variation in weight and gage.

Rivet Steel.—There was a difference of opinion as to the sulphur requirements of rivet steel. The specifications call for not over 0.04 per cent. As this is the rejection limit it was urged that it be raised to 0.045 per cent. But it appeared that there had been no difficulty in obtaining low sulphur material, it having been furnished as low as 0.02, in cases where there was either no specification or a high upper limit, and that there was little danger of red shortness. So the chemical requirements were allowed to stand at:

Manganese	0.30 to 0.50 per cent.
Phosphorus	Not over 0.04 per cent.
Sulphur	Not over 0.04 per cent.

The required physical properties are:

Yield point, lbs. per sq. in.	0.5 tensile strength
Tensile strength, lbs. per sq. in.	45,000 to 55,000
Elongation in 8 in. (per cent.) should equal $\frac{1{,}500{,}000}{\text{Tensile strength.}}$ but need not exceed 10 per cent.	

The cold bend and quench bend tests are about the same as for boiler steel.

Annealed Steel Forgings.—The specifications for annealed steel forgings are about the same as for the other materials insofar as the general requirements are concerned. The sulphur and phosphorus is held at 0.05 per cent. and the manganese at 0.70 per cent. The tensile strength is put at 80,000 lbs. per sq. in., the yield point at one-half that stress, the elongation in 2 in. at 22 per cent. and the reduction of area 35 per cent.

Lap-Welded and Seamless Steel Boiler Tubes.—These must conform to the following chemical composition:

Carbon	Not over 0.15 per cent.
Phosphorus	Not over 0.04 per cent.
Sulphur	Not over 0.045 per cent.
Manganese	0.30 to 0.50 per cent.

Tubes 1¾ in. or over in diameter must be capable of having a flange ⅜ in. wide turned over cold at right angles to the body of the tube without showing cracks or flaws. For tubes less than 1¾ in. in diameter the width of the flange shall be 1/6 the diameter of the tube. A section 4 in. long must stand hammering flat, and coupons 2½ in. long must stand hammering longitudinally into the shape of a ring without showing cracks when crushed flat. Tubes must not be shorter than the required length but may be longer by ⅛ in. It is also required that the thickness of tubes must not vary more than 10 per cent. from that specified.

Wheel Specifications.—Owing to objections offered by the secretary of the Electric Railway Association, all reference to motor car wheels was cut out of the wheel specifications. It also appeared that the specifications, as presented are not altogether satisfactory to the representatives of the M. C. B. Association, principally on account of the tolerances in specified dimensions, and these made up the major portion of the report. There are the usual requirements as to the cropping of the ingots and inspection. A little discussion arose because of the requirement that the metal should be made by the open hearth process, because the alloy and crucible steels were thereby debarred. This was answered by the statement that no one is making crucible steel wheels, and no specification could ever be construed as debarring a superior material.

The chemical requirements for all steel wheels are:

	Acid.	Basic.
Carbon	0.60 to 0.80	0.65 to 0.85 per cent.
Manganese	0.55 to 0.80	0.55 to 0.80 per cent.
Silicon	0.15 to 0.35	0.10 to 0.30 per cent.
Phosphorus	Not over 0.05	Not over 0.05 per cent.
Sulphur	Not over 0.05	Not over 0.05 per cent.

The wheel specifications will be submitted to letter ballot but it is expected that they will have to be modified later to meet the requirements of the M. C. B. Association.

During the last 12 years the Buenos Aires-Pacific railway, Argentina, has increased its lines from 425 miles to 3,180 miles, not including sections of railway now under construction but not yet opened to traffic. Today the railway extends not only to Mendoza and the surrounding country tributary thereto, but crosses the great pampa of central Argentina and links the federal capital with the port of Bahia Blanca. The roadbed and rolling stock of the railway have been greatly improved, and the most modern passenger and freight cars are now employed in handling the immense and ever-growing traffic of this line.

MALLET RESULTS IN ROAD SERVICE.

The 37½ Per Cent. Saving Effected by the Use of High Capacity Freight Locomotives on the Chesapeake & Ohio.

A saving of 5.7 cents per 1,000 ton-miles or 37.55 per cent. in the cost of handling the freight traffic on the Hinton division of the Chesapeake & Ohio, is the result of the installation of 25 Mallets in place of consolidation locomotives in road service on that division, as shown by the comparative records of the operation of the division before and after the Mallets were introduced, furnished by J. F. Walsh, superintendent of motive power.

A single Mallet can haul 3,200 tons up the ruling grade without assistance. The consolidation required a helper of the same class to take 2,250 tons over the division. The Mallets average a 70 per cent. greater train load than the consolidations under present traffic conditions. They handle this greater tonnage at the same average speed—17 miles per hour. As a result, 25 Mallets have replaced 44 consolidations handling the same volume of traffic, and the number of trains daily over the division have been reduced by 17. This has effected a reduction of 27.6 and 42.6 per cent. respectively in the cost of wages for the engine and train crews per 1,000 ton-miles, as well as greatly simplifying the train despatcher's difficulties.

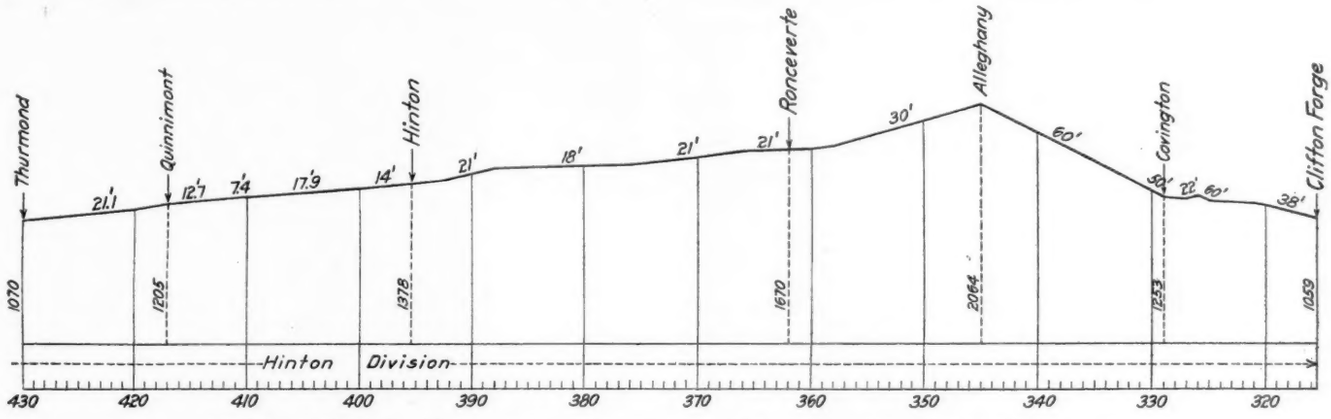
Because of the fuel economy obtained with the superheater and brick arch in combination with compound cylinders, the Mallets save 43 per cent. in coal per ton-mile as compared with the consolidations. This means that a Mallet will burn no more coal than a consolidation in doing 75 per cent. more work; in other words, the fireman's work on the Mallet is no harder and on the average, is probably lighter than formerly on the consolidation. In addition to these important results, 70 per cent. more traffic could be handled with the existing track facilities in case of necessity if Mallets are used without exceeding the number of consolidation locomotives formerly required.

The opportunity of increasing the capacity of a division or relieving existing congestion of traffic without the construction of a single mile of new track, because of the increased power available in the Mallet locomotive, is an advantage which probably bears the greatest weight with the officers of many roads. In this case, for instance, 41 freight trains were run daily over the division with the consolidation locomotives without exceeding the maximum track capacity. If the same number of trains of the average tonnage rating of the Mallets were operated fairly 70 per cent. more tonnage could be transported than at present.

The reduction of over 5 cents per 1,000 ton-miles in the cost of operation becomes impressive when it is considered that on the basis of the present yearly traffic of the Hinton division alone this means a net saving, all factors considered, equal to the interest on $1,500,000 of 5 per cent. bonds.

Assuming for discussion that the total cost of 25 Mallets is $125,000 more than the cost of the 44 consolidations which they replaced (which is certainly not a low estimate), at 13 per cent. yearly for interest and depreciation, which is more than the usual allowance, this would mean an additional fixed charge of $16,250 per year. At present, the average yearly traffic over the division is approximately 1,591,750,400 ton-miles; a saving of 5.7 cents in the operating cost per 1,000 ton-miles, therefore, means an annual saving of $91,360. Deducting the above additional investment charge, the resulting increase in yearly net revenue would be in round numbers, $75,000.

The accompanying itemized comparison of the cost of operation of the two classes of locomotives deserves careful analysis. It is prepared from accurate records, permitting of fair and just comparison, and covers a period of 8 months beginning with the installation of the second order of 24 Mallets, and includes all items of the cost of operation except classified repairs. The item "maintenance" in each case includes only running repairs as none of the Mallets have as yet received general repairs. Records from other roads, however, which have had the American Locomotive Company's Mallets in service for a sufficient length of time to determine the cost of classified repairs, as compared with the locomotives which they replaced, show that while the cost per locomotive is higher the cost per ton-mile is less.



Profile of Hinton Division of the Chesapeake & Ohio from Thurmond to Clifton Forge.

COST PER 1,000 TON-MILES OF MALLETS AND CONSOLIDATIONS IN ROAD SERVICE.

	Cost per 1,000 ton-miles.	
	Mallet.	Consolidation.
Fuel	$.0285	$.05
Wages, engine crew	.034	.047
Wages, train crew	.031	.054
Maintenance (running repairs only)	.0001	.0009
Engine-house expense	.0002	.00015
Supplies	.00009	.00006
Total	$.095	$.152
Decrease due to use of Mallets	$.057	....

From his experience, Mr. Walsh says: "From every point of view we consider the Mallet engines a success."

The introduction of the Mallet on the Hinton division followed directly from the successful performance of a single locomotive of the 2-6-6-2 type of wheel arrangement purchased in July, 1910, from the American Locomotive Company. This original Mallet was ordered for trial purposes with a view of determining the adaptability of the Mallet as a road engine under the existing service conditions. At that time, the freight traffic which is of a general character, consisting of coal, lumber, merchandise and ore, was being handled by consolidation locomotives. A comparison of the principal dimensions of the consolidation locomotives and the Mallets is given in the table on the following page.

Principal Dimensions of the Mallets and the Consolidations Which They Have Replaced.

	2-6-6-2 Type Mallet.	2-8-0 Type Consolidation.
Weight on drivers	337,500 lbs.	176,200 lbs.
Weight on leading truck	23,500 lbs.	21,100 lbs.
Weight on trailers	39,000 lbs.	.....
Total weight of locomotive	400,000 lbs.	197,300 lbs.
Weight of tender	163,000 lbs.	131,700 lbs.
Wheel base, rigid	10 ft.	17 ft.
Wheel base, total of engine	48 ft. 10 in.	25 ft. 3 in.
Wheel base, total of engine and tender	80 ft. 9¼ in.	56 ft. 6 in.
Cylinders, diameter and stroke	22 & 35 x 32 in.	22 x 28 in.
Driving wheels, diameter	56 in.	56 in.
Boiler, outside diameter at front end	83⅞ in.	70 in.
Boiler, working pressure	225 lbs.	200 lbs.
Firebox, length	108⅛ in.	90 in.
Firebox, width	96⅛ in.	75 in.
Tubes, number and diameter	{ 244—2¼ in. } { 36—5½ in. }	329—2 in.
Tubes, length	24 ft.	14 ft. 9 in.
Heating surface, tubes	4,674 sq. ft.	2,527 sq. ft.
Heating surface, firebox	344 sq. ft.	157 sq. ft.
Heating surface, water tubes	23 sq. ft.	26 sq. ft.
Heating surface, total	5,041 sq. ft.	2,710 sq. ft.
Superheating surface	911 sq. ft.	.....
Grate area	72.2 sq. ft.	46.9 sq. ft.
Tender, water capacity	9,000 gals.	7,000 gals.
Tender, coal capacity	15 tons	10 tons
Maximum normal tractive effort	82,000 lbs.	41,140 lbs.
Maximum tractive effort (working simple)	98,400 lbs.	.....

The profile here illustrated shows the grade conditions. Most of the freight movement is eastbound from Thurmond, W. Va., to Clifton Forge, Va., in which direction the ruling grade is 30 ft. to the mile and about 13 miles long between Ronceverte and Alleghany. Passing Alleghany, it is practically all down grade into Clifton Forge, 15 miles, of this being a descent of 60 ft. to the mile. With the assistance of a pusher of the same class on the 30 ft grade one of the consolidations could take a maximum train load of 2,250 tons over the division.

In order to reduce the cost of operation by running heavier and fewer trains the Chesapeake & Ohio management decided to introduce a heavier class of power. An order was accordingly placed for the single Mallet above mentioned to determine its advantages. After a few months' service of this engine, 24 more were ordered from the same builders.

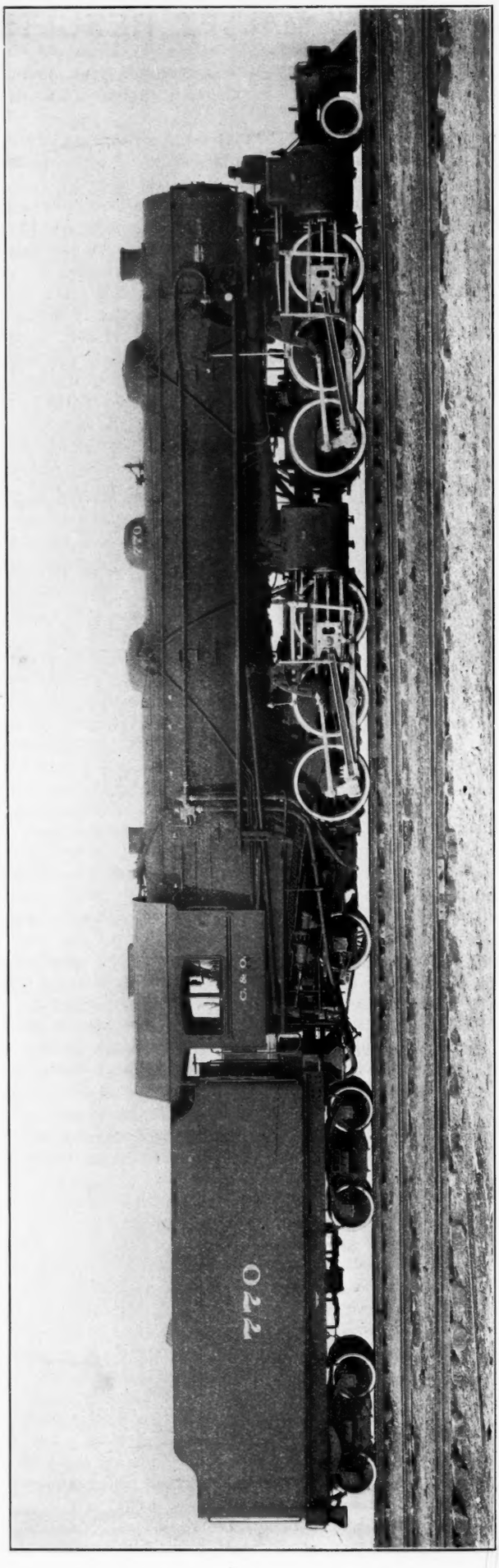
The later engines are of practically the same design as the first except that they are equipped with fire tube superheaters, as prior to their construction comparative tests made of the Mallet on the New York Central* had proved conclusively that highly superheated steam used in conjunction with compound cylinders gave greater economy in operation and increased capacity. This was especially true at the higher speeds as a result of the improved cylinder performance thereby secured, thus better adapting the Mallet to the varying speed conditions which obtain in road service.

The maximum normal starting tractive power of the superheater locomotives is the same as that of the locomotive using saturated steam. At the speeds at which the engines are operated the superheater locomotive probably develops more power than the other. The application of the superheater and such other minor modifications as were made in the design also increased the total weight of the locomotive to 400,000 lbs., 8,000 lbs. more than that of the original design.

These later Mallets thus represent a design specially worked out to meet the specific conditions of the service for which they were intended on the basis of accurate data secured from the performance of an engine of the same type tried out in the identical service. By the use of correct proportions and careful construction of details in combination with fuel-saving devices of proved value and serviceability they provide the maximum economy in operation in increased capacity per pound of fuel burned.

The feature of the design of greatest interest is the construction of the boiler. This is equipped with a combustion chamber 6½ ft. long. By means of this construction the length of the boiler was extended so as to bring the firebox back of the rear driving wheels and over the trailing truck and thus secure an unusually deep throat without necessitating the use of excessively long boiler tubes. As a result the depth of the sheet is 18 3/16 in., thus insuring a better circulation of water. Ample water space of about 9 in. on both the bottom and sides is pro-

*Railway Age Gazette, November 24, 1911, page 1054.



Mallet Locomotive Which Has Replaced Consolidations on the Hinton Division of the Chesapeake & Ohio.

vided between the combustion chamber and the shell of the boiler.

The boiler has a large capacity, since with the greater evaporative value of the combustion chamber, as compared with the amount of tube heating surface it displaces, and the improved cylinder economy secured by the superheater, the 5,071 sq. ft. of actual heating surface gives an ample margin of capacity to develop the maximum power of the locomotive.

Another feature worthy of special notice is the trailing truck. This is of the American Locomotive Company's improved type of outside bearing radial truck, and is the first instance of its application to a Mallet locomotive. This truck has, however, been applied with marked success to a large number of mikado and Pacific type locomotives, and is the American Locomotive Company's standard design of trailing truck for those types. It gives a wider supporting base at the rear of the locomotive which tends to increase its steadiness in running and makes it easier riding. The springs are guided by floating spring seat yokes hinged to the main frames. The spring seats are carried on trunnion blocks pivoted in the yoke. This construction provides the greatest flexibility in the spring supports which is necessary to permit the springs to perfectly adjust themselves to the alinement of the journal boxes in any required position without the liability of "cocking" of the spring seats. In the present standard design of this type of truck the double trunnion spring seat support has been replaced by a drop forged sphere, made in halves and riveted together, on which the spring seat rests. This provides the universal adjustment necessary for the rise and fall of the engine and at the same time minimizes the tendency for lost motion to accumulate. Moreover, all the spring seats being in compression any lost motion which may accumulate from wear is automatically taken up.

The Chesapeake & Ohio Railway occupies a prominent position among the many roads of the country who have been making special efforts towards reducing operating costs by taking advantage of the latest improvements in locomotive design. The attitude of J. F. Walsh, general superintendent of motive power toward the present problems of transportation has been very progressive, and a number of new classes of locomotives have been introduced within the past two years, on this road. These include the Mallets under discussion, the mountain type and a powerful mikado just completed by the same builders.

EFFECT OF WAGE ADVANCES ON EMPLOYEES' COMPENSATION.

The Bureau of Railway Economics, Washington, D. C., in its Bulletin No. 28, has issued a report on the effect of recent wage advances on Railway Employees' Compensation during the year ending June 30, 1911. The study was undertaken to ascertain what proportion of the amount of compensation paid by railways to their employees in 1911 was due solely to increases in rates of pay. Changes due to increase or decreases in labor force are not shown. Part of the advances in pay took effect during 1910, so the year 1911 is compared also with 1909.

The railways report to the Interstate Commerce Commission the total compensation received by each class of employees, and the total number of days worked by each class. In classes of labor remunerated on a mileage basis it is frequently the case that individuals receive compensation for more constructive days than there are actual days in the period. In such cases the average daily compensation, as reported, appears to be less than it really is. Comparisons can be made only in a general way between different railways, but comparisons from year to year on individual roads will be valid. Data have been utilized for all railways over 500 miles long; 83 roads, operating a total of 188,760 miles of line, or 77.4 per cent. of the total. The figures cover about 83 per cent. of the total compensation to their employees paid by the railways of the country in 1909, 1910 and 1911, respectively. The wages paid in 1911 by the 83 roads amounted to $1,005,277,249. The increase in compensation over 1909 due to advances in rates of wages over the rates of 1909 amounts to $69,297,678, or 7.4 per cent. The increase in compensation over 1910 due to advances in rates of wages over the rates of 1910 amounts to $41,868,822, or 4.3 per cent.

Increased Compensation to Railway Employees in 1911, Due to Advances in Rates of Pay.

Class.	Total compensation 1911.	Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during 1910 Amount.	1910 Per Cent.	1909 Amount.	1909 Per Cent.
General officers	$13,669,727	—$135,646	—1.0	$551,318	4.2
Other officers	17,852,412	—246,777	—1.4	—2,088	...
General office clerks	53,873,729	1,252,563	2.4	2,769,872	5.4
Station agents	22,842,503	755,750	3.4	1,138,021	5.3
Other station men	81,038,692	2,912,948	3.7	3,788,193	4.9
Enginemen	79,636,834	3,945,320	5.2	5,791,868	7.8
Firemen	49,151,135	3,533,079	7.7	4,657,490	10.5
Conductors	54,077,929	2,828,366	5.5	4,746,785	9.6
Other trainmen	99,154,674	7.457,443	8.1	11,247,889	12.8
Machinists	43,714,414	1,330,545	3.1	2,648,127	6.4
Carpenters	41,151,335	1,080,337	2.7	2,172,422	5.6
Other shopmen	129,182,032	4,138,253	3.3	7,663,046	6.3
Section foremen	25,607,524	1,100,026	4.5	1,531,441	6.4
Other trackmen	115,662,828	2,877,371	2.6	9,279,486	8.7
Switch tenders, crossing tenders and watchmen	19,359,983	715,827	3.8	569,676	3.0
Telegraph operators and despatchers	30,236,595	1,348,022	4.7	1,709,745	6.0
Employees—account floating equipment	5,070,787	262,252	5.5	222,849	4.6
All other employees and laborers	123,994,116	6,713,143	5.7	8,811,538	7.7
Total	$1,005,277,249	$41,868,822	4.3	$69,297,678	7.4

Minus sign (—) denotes decrease.

Increases due to advances since 1909 have applied to all classes with the exception of "other officers"; increases due to advances since 1910 have applied to all classes except general officers and other officers. The heaviest increases over 1909 are in "other trainmen," "other trackmen," enginemen, conductors and firemen. The larger increases in 1910 are in "other trainmen," "other shopmen," enginemen, firemen and conductors.

A comparison by combined classes for the whole United States shows that increases in compensation have applied to all the large general groups. The largest increase as compared with 1909 is in the wages of trainmen, amounting to 10.4 per cent.; the wages of trainmen also show the largest increase over 1910, the percentage being 6.7 per cent. Trackmen show an increase over 1909 of 8.3 per cent., and an increase over 1910 of 2.9 per cent.

Similar comparisons for the railways of the three geographical divisions are shown herewith. The eastern group comprises roads east of the Mississippi and north of the Ohio and Potomac rivers, the southern group those east of the Mississippi and south of the Ohio and Potomac, and the western group those west of the Mississippi. Roads lying in more than one group are assigned to that group containing the largest portion of their mileage.

Increased Compensation to Railway Employees in 1911, Due to Advances in Rates of Pay—Eastern Group.

Class.	Total compensation 1911.	Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during 1910 Amount.	1910 Per Cent.	1909 Amount.	1909 Per Cent.
Officers and clerks	$42,931,572	$512,883	1.2	$1,686,628	4.1
Station men	58,736,140	2,135,926	3.8	3,134,534	5.6
Trainmen	151,922,635	11,155,376	7.9	15,107,280	11.0
Shopmen	111,510,245	3,870,361	3.6	7,250,592	7.0
Trackmen	59,043,261	2,630,969	4.7	4,872,973	9.0
Switch tenders, crossing tenders and watchmen	13,720,356	721,618	5.6	956,006	7.5
Telegraph operators and despatchers	14,749,346	807,709	5.8	1,099,791	8.1
All other employees and laborers	66,168,177	5,949,628	9.9	6,891,663	11.6
Total	$518,781,732	$27,784,470	5.7	$40,999,467	8.6

Here the largest increase over 1910 was in the compensation to trainmen, amounting to $11,155,376, or 7.9 per cent. Telegraph operators and despatchers in 1911 received 5.8 per cent. over 1910 to switchmen and watchmen 5.6 per cent., and trackmen 4.7 per cent. For 1911, as compared with 1909, the com-

pensation of trainmen again shows the largest increase, $15,107,280, or 11 per cent. The increase to trackmen amounted to 9 per cent., to telegraph operators, 8.1 per cent., to switchmen and watchmen, 7.5 per cent., and to shopmen 7 per cent. This comment does not include the considerable increases in the wages of the miscellaneous group of employees included under "all other employees and laborers."

Increased Compensation in 1911, Etc.—Southern Group.

Combined Class.	Total compensation 1911.	Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during 1910 Amount.	1910 Per Cent.	1909 Amount.	1909 Per Cent.
Officers and clerks	$9,796,057	$294,040	3.1	$581,152	6.3
Station men	12,253,442	531,799	4.5	632,195	5.4
Trainmen	33,916,860	2,586,534	8.3	4,189,480	14.1
Shopmen	25,955,962	934,554	3.7	1,467,683	6.0
Trackmen	14,826,414	306,034	2.1	779,096	5.6
Switch tenders, crossing tenders and watchmen	1,763,817	129,570	7.9	135,242	8.3
Telegraph operators and despatchers	3,755,564	149,885	4.2	202,790	5.7
All other employees and laborers	14,228,905	437,464	3.2	552,306	4.0
Total	$116,497,021	$5,369,880	4.8	$8,539,944	7.9

In the southern group the greatest increase over 1910 was in the compensation to trainmen, $2,586,534, or 8.3 per cent. The increase to switchmen and watchmen was 7.9 per cent., to station men 4.5 per cent., and to telegraph operators and despatchers 4.2 per cent. The total compensation paid to trainmen in 1911 also includes the largest percentage due to advances in the rates of wages over those applying in 1909, the amount being $4,189,480, or 14.1 per cent. The corresponding increase in the pay of switchmen and watchmen amounted to 8.3 per cent., in that of officers and clerks to 6.3 per cent., and in that of shopmen to 6 per cent.

Increased Compensation in 1911, Etc.—Western Group.

Combined Class.	Total compensation 1911.	Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during 1910 Amount.	1910 Per Cent.	1909 Amount.	1909 Per Cent.
Officers and clerks	$32,668,239	$63,217	.2	$1,051,322	3.3
Station men	32,891,613	1,000,973	3.1	1,159,485	3.7
Trainmen	96,181,077	4,022,298	4.4	7,147,272	8.0
Shopmen	76,581,574	1,744,220	2.3	3,765,320	5.2
Trackmen	67,400,677	1,040,394	1.6	5,158,858	8.3
Switch tenders, crossing tenders and watchmen	3,875,810	—135,361	—3.4	—521,572	—11.9
Telegraph operators and despatchers	11,731,685	390,428	3.4	407,164	3.6
All other employees and laborers	48,667,821	588,303	1.2	1,590,418	3.4
Total	$369,998,496	$8,714,472	2.4	$19,758,267	5.6

Minus sign (—) denotes decrease.

All but one of the large general classes show increases over 1910. The only decrease was in the rate of wages of switchmen and watchmen.

In general, the largest per cent. of increase in 1911 over those effective in 1910 or 1909 are found in the eastern group, and the smallest in the western group. (The smallness of these percentages in the case of the western group of railways may be partly due to incomplete returns for certain roads of that group.)

Increased Compensation to Railway Employees in 1911 Due to Advances in Rates of Pay.
(Roads over 500 miles long.*a*)

United States.

Class.	Mileage for 1911 included in comparison. (*b*)	Total compensation paid in 1911.	What compensation for 1911 would have been, if paid at rate of wages effective during 1910.	1909.	Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during 1910 Amount.	1910 Per Cent.	1909 Amount.	1909 Per Cent.
General officers	188,760.04	$13,669,727	$13,805,373	$13,118,409	—$135,646	—1.0	$551,318	4.2
Other officers	188,760.04	17,852,412	18,099,189	17,854,500	—246,777	—1.4	—2,088	*
General office clerks	188,760.04	53,873,729	52,621,166	51,103,857	1,252,563	2.4	2,769,872	5.4
Station agents	182,561.76	22,842,503	22,086,753	21,704,482	755,750	3.4	1,138,021	5.3
Other station men	182,561.76	81,038,692	78,125,744	77,250,499	2,912,948	3.7	3,788,193	4.9
Enginemen	175,315.56	79,636,834	75,691,514	73,844,966	3,945,320	5.2	5,791,868	7.8
Firemen	175,315.56	49,151,135	45,618,056	44,493,645	3,533,079	7.7	4,657,490	10.5
Conductors	175,315.56	54,077,929	51,249,563	49,331,144	2,828,366	5.5	4,746,785	9.6
Other trainmen	175,315.56	99,154,674	91,697,231	87,906,785	7,457,443	8.1	11,247,889	12.8
Machinists	179,088.99	43,714,414	42,383,869	41,066,287	1,330,545	3.1	2,648,127	6.4
Carpenters	177,442.80	41,151,335	40,070,998	38,978,913	1,080,337	2.7	2,172,422	5.6
Other shopmen	179,088.99	129,182,032	125,043,779	121,518,986	4,138,253	3.3	7,663,046	6.3
Section foremen	188,760.04	25,607,524	24,507,498	24,076,083	1,100,026	4.5	1,531,441	6.4
Other trackmen	188,760.04	115,662,828	112,785,457	106,383,342	2,877,371	2.6	9,279,486	8.7
Switch tenders, crossing tenders and watchmen	182,561.76	19,359,983	18,644,156	18,790,307	715,827	3.8	569,676	3.0
Telegraph operators and despatchers	188,760.04	30,236,595	28,888,573	28,526,850	1,348,022	4.7	1,709,745	6.0
Employees—account floating equipment	182,561.76	5,070,787	4,808,535	4,847,938	262,252	5.5	222,849	4.6
All other employees and laborers	182,561.76	123,994,116	117,280,973	115,182,578	6,713,143	5.7	8,811,538	7.7
Total	188,760.04	$1,005,277,249	$963,408,427	$935,979,571	$41,868,822	4.3	$69,297,678	7.4

Eastern Group.

General officers	52,836.08	$5,695,791	$5,663,802	$5,309,120	$31,989	.6	$386,671	7.3
Other officers	52,836.08	8,593,545	8,663,729	8,572,172	—70,184	—.8	21,373	.2
General office clerks	52,836.08	28,642,236	28,091,158	27,363,652	551,078	2.0	1,278,584	4.7
Station agents	52,836.08	10,138,877	9,671,777	9,403,273	467,100	4.8	735,604	7.8
Other station men	52,836.08	48,597,263	46,938,437	46,198,333	1,668,826	3.6	2,398,930	5.2
Enginemen	52,836.08	42,227,196	39,531,073	38,779,190	2,696,123	6.8	3,448,006	8.9
Firemen	52,836.08	25,964,668	23,813,920	23,427,867	2,150,748	9.0	2,536,801	10.8
Conductors	52,836.08	29,108,995	26,989,311	26,123,487	2,119,684	7.9	2,985,508	11.4
Other trainmen	52,836.08	54,621,776	50,432,955	48,484,811	4,188,821	8.3	6,136,965	12.7
Machinists	52,836.08	26,029,913	24,926,357	24,052,790	1,103,556	4.4	1,977,123	8.2
Carpenters	52,836.08	20,916,953	20,110,253	19,504,328	806,700	4.0	1,412,625	7.2
Other shopmen	52,836.08	64,563,379	62,603,274	60,702,535	1,960,105	3.1	3,860,844	6.4
Section foremen	52,836.08	9,878,119	9,415,129	9,240,144	462,990	4.9	637,975	6.9
Other trackmen	52,836.08	49,165,142	46,997,163	44,930,144	2,167,979	4.6	4,234,998	9.4
Switch tenders, crossing tenders and watchmen	52,836.08	13,720,356	12,998,738	12,764,350	721,618	5.6	956,006	7.5
Telegraph operators and despatchers	52,836.08	14,749,346	13,941,637	13,649,555	807,709	5.8	1,099,791	8.1
Employees—account floating equipment	52,836.08	4,782,012	4,528,579	4,569,040	253,433	5.6	212,972	4.7
All other employees and laborers	52,836.08	61,386,165	55,689,970	54,707,474	5,696,195	10.2	6,678,691	12.2
Total	52,836.08	$518,781,732	$490,997,262	$477,782,265	$27,784,470	5.7	$40,999,467	8.6

Southern Group.

General officers	30,676.62	$1,328,449	$1,414,485	$1,332,537	—$86,036	—6.1	—$4,088	—.3
Other officers	30,676.62	3,026,869	2,983,372	2,876,280	43,497	1.5	150,589	5.2
General office clerks	30,676.62	5,440,739	5,104,160	5,006,088	336,579	6.6	434,651	8.7
Station agents	30,676.62	3,607,838	3,457,502	3,408,035	150,336	4.3	199,803	5.9
Other station men	30,676.62	8,645,604	8,264,141	8,213,212	381,463	4.6	432,392	5.3
Enginemen	30,676.62	10,558,230	9,958,457	9,509,009	599,773	6.0	1,049,221	11.0

INCREASED COMPENSATION TO RAILWAY EMPLOYEES IN 1911 DUE TO ADVANCES IN RATES OF PAY.
(Roads over 500 miles long.*a*)

SOUTHERN GROUP (*Continued.*)

Class.	Mileage for 1911 included in comparison. (*b*)	Total compensation paid in 1911.	What compensation for 1911 would have been, if paid at rate of wages effective during		Difference between compensation in 1911 and what that compensation would have been at rate of wages effective during			
					1910		1909	
			1910.	1909.	Amount.	Per Cent.	Amount.	Per Cent.
Firemen	30,676.62	5,414,180	5,003,375	4,829,146	410,805	8.2	585,034	12.1
Conductors	30,676.62	7,304,782	7,237,174	6,510,422	67,608	.9	794,360	12.2
Other trainmen	30,676.62	10,639,668	9,131,320	8,878,803	1,508,348	16.5	1,760,865	19.8
Machinists	30,676.62	4,078,587	3,930,334	3,854,367	148,253	3.8	224,220	5.8
Carpenters	30,676.62	5,804,506	5,508,342	5,438,331	296,164	5.4	366,175	6.7
Other shopmen	30,676.62	16,072,869	15,582,732	15,195,581	490,137	3.1	877,288	5.8
Section foremen	30,676.62	3,186,811	2,977,668	2,930,935	209,143	7.0	255,876	8.7
Other trackmen	30,676.62	11,639,603	11,542,712	11,116,383	96,891	.8	523,220	4.7
Switch tenders, crossing tenders and watchmen	30,676.62	1,763,817	1,634,247	1,628,575	129,570	7.9	135,242	8.3
Telegraph operators and despatchers	30,676.62	3,755,564	3,605,679	3,552,774	149,885	4.2	202,790	5.7
Employees—account floating equipment	30,676.62	135,189	131,608	131,420	3,581	2.7	3,769	2.9
All other employees and laborers	30,676.62	14,093,716	13,659,833	13,545,179	433,883	3.2	548,537	4.0
Total	30,676.62	$116,497,021	$111,127,141	$107,957,077	$5,369,880	4.8	$8,539,944	7.9
WESTERN GROUP.								
General officers	105,247.34	$6,645,487	$6,727,086	$6,476,752	—$81,599	—1.2	$168,735	2.6
Other officers	105,247.34	6,231,998	6,452,088	6,406,048	—220,090	—3.4	—174,050	—2.7
General office clerks	105,247.34	19,790,754	19,425,848	18,734,117	364,906	1.9	1,056,637	5.6
Station agents	99,049.06	9,095,788	8,957,474	8,893,174	138,314	1.5	202,614	2.3
Other station men	99,049.06	23,795,825	22,933,166	22,838,954	862,659	3.8	956,871	4.2
Enginemen	91,802.86	26,851,408	26,201,984	25,556,767	649,424	2.5	1,294,641	5.1
Firemen	91,802.86	17,772,287	16,800,761	16,236,632	971,526	5.8	1,535,655	9.5
Conductors	91,802.86	17,664,152	17,023,078	16,697,235	641,074	3.8	966,917	5.8
Other trainmen	91,802.86	33,893,230	32,132,956	30,543,171	1,760,274	5.5	3,350,059	11.0
Machinists	95,576.29	13,605,914	13,527,178	13,159,130	78,736	.6	446,784	3.4
Carpenters	93,930.10	14,429,876	14,452,403	14,036,254	—22,527	—.2	393,622	2.8
Other shopmen	95,576.29	48,545,784	46,857,773	45,620,870	1,688,011	3.6	2,924,914	6.4
Section foremen	105,247.34	12,542,594	12,114,701	11,905,004	427,893	3.5	637,590	5.4
Other trackmen	105,247.34	54,858,083	54,245,582	50,336,815	612,501	1.1	4,521,268	9.0
Switch tenders, crossing tenders and watchmen	99,049.06	3,875,810	4,011,171	4,397,382	—135,361	—3.4	—521,572	—11.9
Telegraph operators and despatchers	105,247.34	11,731,685	11,341,257	11,324,521	390,428	3.4	407,164	3.6
Employees—account floating equipment	99,049.06	153,586	148,348	147,478	5,238	3.5	6,108	4.1
All other employees and laborers	99,049.06	48,514,235	47,931,170	46,929,925	583,065	1.2	1,584,310	3.4
Total	105,247.34	$369,998,496	$361,284,024	$350,240,229	$8,714,472	2.4	$19,758,267	5.6

Minus sign (—) denotes decrease.
* Decrease of less than one-tenth of one per cent.
a Except the Chicago, Milwaukee & Puget Sound and Oregon-Washington.
b Variations of mileage represented in different classes are due to incompleteness of returns from certain Western roads.

A FORM FOR ANNUAL REPORTS PRESCRIBED BY LAW IN ENGLAND.

In December last the English Parliament enacted a law prescribing the form of accounts to be submitted by railway companies annually to the English Board of Trade. This law goes further than any orders of our own Interstate Commerce Commission have yet gone, in that it not only requires copies of the accounts to be filed with the supervising body (the Board of Trade in England; the I. C. C. in America), but requires that not later than 60 days after the close of the calendar year a copy of the accounts shall be forwarded to any stockholder or debenture holder of the company making the returns who shall ask for it, and a penalty of $25 a day is prescribed for failing to file reports on time. A further penalty of imprisonment for one year is provided for any officer who signs any of the returns which, to his knowledge, are false. The magazine writer, the investigator, the student and the great British public, who may not be stockholders, are provided for in a rule which gives each or any one of them the right to inspect the accounts on paying a fee of a shilling for each inspection of each railway's account.

The act takes effect on January 1, 1913. The Board of Trade is given the power to change provisions in the act, but must publish a notice of such changes and must consider any objection or suggestion made by those who are affected by the change; and if railway companies having a capitalization totaling a third of the total railway capitalization in Great Britain are not satisfied with the way any objection has been dealt with by the board, the order of the board shall not take effect unless it is confirmed by the English Parliament.

FINANCIAL ACCOUNTS.

The annual report which is required is divided into two parts, called financial accounts and statistical returns. The financial accounts are divided into 18 primary exhibits; the statistical returns into 16. The first three of the financial accounts call for information in regard to the issue of new shares or debentures. Details of the character of the security issued, the amount authorized and the amount actually sold or provided for, and the powers under which the new securities are issued, must be given in full. Account No. 4 shows receipts and expenditures on capital account. Expenditures are divided as between lines in operation, lines under construction, leased lines, etc., and separately for such activities as under the Interstate Commerce Commission form of accounts would be called outside operations, such as hotels, etc. On the receipt side, the amount received from the sale of securities must be shown, together with the premium or discount on the sales. Investment in any other companies must also be shown in detail.

Account 5 calls for the details of capital expenditures for the year, dividing these expenditures as between land and compensation, building of line and accessories, and law charges and parliamentary expenses. This division applies to what we would call additions and betterments to railway lines. Expenditures for new rolling stock must also be shown and expenditures for capital account of outside operations.*

Account 6 has no parallel in the requirements of the Interstate Commerce Commission. It calls for an estimate of future expenditures on capital account. The figures which are required must show what has been already spent on any work which it is estimated will require further expenditures, what the company expects to spend during the current year, and what the probable subsequent expenditures will be to complete the work. This budget must include new railway construction, purchases of railways, new rolling stock and outside operations.

Account 7 carries this one step further and calls for figures showing how these future expenditures are to be financed.

Accounts 8 to 18 deal with revenue and expenses. No. 8 is

*When technical terms, such as this, are taken from the Interstate Commerce Commission's classification, they are used for the convenience of American readers and are not, of course, the terms used in the English act.

called revenue, receipts and expenditures, and might be described as a condensed income account statement down as far as net corporate income after the payment of what the English call general interest. The figures for the year for which the report is made are called for carried out to pounds, shillings and pence, while the previous year's figures are required to be given for comparison in round numbers only. Account No. 9 carries the income account on down, showing interest, rental and fixed charges, appropriations and dividends. Account No. 10 corresponds to and contrasts with the elaborate provision of the Interstate Commerce Commission for the classification of operating revenues and expenses of steam roads.

What we should call operating expenses are divided under the general heads of maintenance and renewal of way and works; maintenance and renewal of rolling stock; locomotive running expenses; traffic expenses; general charges; running powers; and joint lines. The first of these divisions corresponds fairly closely to the I. C. C. maintenance of way and structures. Instead, however, of being divided into 27 accounts, the English system is divided into six main accounts, some of which are further subdivided. The English make a distinction between renewals of right of way and track and repairs of right of way and track, which suggests the possibility of either an arbitrary division of labor costs or a considerable waste of time in trying to determine what should strictly be charged to repairs and what to renewals. It is noticeable that the English charge the cost of repairs of work equipment to maintenance of way and not to maintenance of equipment. Their maintenance of equipment account is divided as between locomotives, carriages (passenger train cars) and wagons (freight train cars). They divide their costs as between complete renewals, and repairs and partial renewals, but they mean by renewals not replacement in whole but apparently renewal of parts, for they have a separate account for purchase of new rolling stock. In each account expenditures are divided as between wages and materials.

The accounts of locomotive running expenses and traffic expenses taken together correspond roughly to the old conducting transportation account which the I. C. C. split up into transportation and traffic; but the English traffic expenses, while it includes such items as printing, advertising, etc., also includes wages of trainmen, exclusive of locomotive enginemen; station men, etc., and fuel, exclusive of locomotive fuel. Locomotive running expenses is self explanatory. It includes wages of enginemen, fuel, water and lubricants. General expenses are much the same as ours. Running powers correspond to our trackage rights, and joint lines explains itself.

Revenues are divided as between passenger and freight traffic, and it is interesting to note that the expense of the collection and delivery of baggage and freight is subtracted separately for each class of revenue in the revenue account and not shown in the expense account.

The general balance sheet required is, compared to that of the I. C. C., quite simple. At first glance it appears strange because, following English custom, the left hand or debit side of the balance sheet is taken up by liabilities, and on the right hand or credit side are the assets. It will be recalled that account 4 showed receipts and expenditures on capital account, so that the balance sheet simply calls for the total credit on account 4 for the liability side, and the total debit for the asset side.

STATISTICAL RETURNS.

Following previous English practice and the opinion of the majority of English railway men, the traffic statistics, especially those of freight, are not called for on by any means as comprehensive a scale as is required by the Interstate Commerce Commission. However, the new bill provides for much more elaborate figures than have been generally reported by English railways heretofore. For the first time all English railways will be required to show tonnage of freight carried, with the exception, however, of live stock, which is shown by number of head and not by weight. A tabulation of track mileage is called for, but nothing need be shown as to the grades, curvature, weight of rail, etc. A description of rolling stock is provided for, as is also a description of the equipment used in delivering and collecting freight. Where financial account 10 called for costs of maintenance of way, statistical tables 10 and 11 call for a description of materials used in maintenance of way and in repairs and renewals of rolling stock. The amount of ballast, tons of rails and number of ties used in maintenance each year are to be shown, and the number of locomotives repaired, divided as between heavy and light repairs, number awaiting repairs, etc. Repairs and renewals done in the company shops is shown separately from the work done by contract. Engine mileage is to be shown in considerable detail, and each company is required to give a list of the tonnage of commodities carried divided as between different classes; the railway company and the Board of Trade in each case agree on the classification for each road separately.

Finally, a summary of financial results secured in comparison with those for past years is required. This requirement is not made retroactive, but is to be extended year by year until ten years are reached, and thereafter to be shown only for the current year and nine previous years. It does not differ very much in substance, although it does in form, from the condensed table that the *Railway Age Gazette* uses when commenting on railway annual reports, with the important exception, however, of showing expenditures on capital account, which would seem to confuse income account and capital account, at least in theory.

FOREIGN RAILWAY NOTES.

The Brazilian Railroad Construction Company has been granted a concession to build a line from Antonio do Juquia, Brazil, to a point on the left bank of the Rio Riberia de Iguape, about 240 miles below the mouth of the Juquia river. This concession will extend over a period of 25 years.

The Hungarian state railways, becoming anxious because the high price of tin was making journal-bearings too costly, started experimenting with a view to finding an alloy which would answer the purpose and require less tin. The engineer, John Farkas, who conducted the experiments, reports that an alloy of 78 parts lead, 17 of antimony and 5 of tin answers the purpose. It melts at 432 degs., and its elasticity is nearly the same as that of the metal heretofore used. To test its wear and friction 5,000 cars were fitted with bearings of the new metal. After three years' trial it was found that they wore almost as well as the old bearings, with as few hot boxes. The metal costs about 20 cents a pound less. The method of casting is different, but is readily learned. The general adoption of this alloy is ordered on the Hungarian state railways.

The preparatory work for the electrification of the division of the Prussian state railway, between Magdeburg and Leipzig via Halle-on-the-Saale is so far along that the entire division is expected to be in operation by the end of 1913. The management has operated experimentally the section between Dessau and Bitterfeld, and is well satisfied with the results. The power station and appliances connected with the experiments have, however, the appearance of temporary works. The Prussian parliament has granted the means for putting into service two divisions with full electric traction. One can serve as a type of a line in a flat country; namely, the one above mentioned, Magdeburg-Halle-Leipzig. The other, representing the conditions of mountain service, starts at Lauban, and will be finished after the first-named. Most of the contracts for the work on the western division have been awarded, so that the carrying out of the plans need not be long delayed. Consideration for the rest of the Prussian State railway service has made it necessary to introduce locomotives temporarily. Not only the freight, but also the passenger trains, are to be run electrically, and those trains which on the other divisions are driven by steam, will be hauled electrically between Magdeburg and Leipzig.

THE FUTURE OF RAILWAY REGULATION.

Abstract of an Address Delivered at the Annual Dinner of the Traffic Club of Pittsburgh, March 28, 1912.

BY CHARLES A. PROUTY,
Chairman, Interstate Commerce Commission.

I became a member of the Interstate Commerce Commission in December, 1896. The following spring, as I now remember it, the Supreme Court of the United States handed down its decision in what was known as the Maximum Rate Case, holding that the commission had no authority to prescribe a maximum rate. Not long after this I wrote an article, which was published in some magazine, taking the ground that there could be no regulation of the interstate railway rates of this country without the exercise of that power. The views which I then expressed were bitterly condemned by almost every leading newspaper east of the Mississippi and north of the Potomac and Ohio rivers as socialistic and impossible.

What at that time was regarded as an extreme doctrine has come to be axiomatic. It is universally assumed today that interstate rates and practices must be regulated, and that they can only be regulated by prescribing the rate or the practice for the future. Nor is it within the realm of possibilities that the old order of things and the old set of ideas can ever return.

Are conditions today better or worse than they were 15 years ago? From the standpoint of the shipper they are infinitely better. Today every man pays the same rate as his competitor, every man knows what that rate is and can assume that his contract will be fulfilled upon the same rate under which it was made. There is a tribunal with power to hear and correct alleged grievances. Upon the part of the railway the answer should be the same. It must be certainly more comfortable to the traffic official to act within than to be habitually without the law; but disregarding the sentimental and moral aspects and looking only to the financial side, still today is better than then

In 1897 the great railway systems of this country did not establish their rates of transportation. These rates were made by powerful shippers, by insignificant competitors. When once published they could not be maintained. Today, owing partly to a saner way of thinking and in part to a greater unity of operation, railways can control their rates. It would today be possible to very materially advance the published railway rates of this country, and when once the rate has been filed, it must be and is maintained.

Upon the other hand, the government now exercises the right of determining what rate shall be filed. From now on, what the gross revenues of our railways shall be rests with the government, mainly and increasingly with the federal government. This being so, what security can the railway investor feel that this authority will be justly exercised? What assurance is there that rates will not finally be forced down to an unprofitable level or if the increasing cost of operation makes an advance in rates necessary, that this advance will be permitted? In a word, what protection has the vast investment which is represented by the railways of this country?

WHAT PROTECTION HAS INVESTMENT IN RAILWAYS?

First of all, there is the protection of the courts, and this, I think, our financial interests mainly rely upon. In my opinion, that protection will not prove satisfactory. Under the constitution of the United States the functions of government are divided into the executive, legislative and judicial, and the functions of one branch of the government cannot be discharged by any other. The Supreme Court of the United States has itself declared that the making of a railway rate is a legislative function. There is no rule of law by which the reasonableness of a rate can be determined; there is no exact formula upon which it can be computed. When thought out, it will be seen in every case that the determination of a reasonable railway charge involves the exercise of judgment brought to bear upon the circumstances of each case. This is the method by which the traffic official makes the rate, and his action must be revised by the same method if it is to be fairly and intelligently examined.

The constitution of the United States forbids the taking of private property without due compensation. The legislature cannot so adjust the charges of a railway as to deprive that railway of a fair return for the use of its property as a whole. But there is no requirement of the constitution that the rate on sugar shall bear a certain relation to the rate on salt, or that the charge for transporting coal from a certain locality shall bear a given relation to the rate from a certain other locality, nor even that a certain part of the revenue shall come from the handling of passengers and another part from freight. These questions are all legislative. The court can only inquire whether the net result yields to the carrier a fair return, whatever that may signify.

In the past the courts have persisted in invading the legislative domain, but this will not, I think, be permanently permitted. There can be no intelligent review of a legislative act by judicial process. There can be no effective regulation of railway rates so long as the administrative acts of the regulating body can be reviewed by the courts. Ultimately the legislature will be left supreme in that domain where the exercise of legislative judgment is required.

This means that the court can stand between the railway and confiscation, but that it will not be allowed to determine how profitable the railway investment shall be, for that is not the business of a court. In all that vast realm covered by the word reasonable, within that zone bounded by confiscation on one side and a resonable rate on the other the legislature will dominate.

It should also be borne in mind that this protection which our railways now have in the courts, and which I for one would be glad to see left there if properly exercised, can at any moment be taken away altogether. We act under a written constitution, which is at any time susceptible to amendment. If it becomes clearly apparent that in its present form our constitution lends itself to injustice and prevents the accomplishment of the right, then it will in due time be changed. I have for a long time thought that the outcome of all this conflict between legislature and court was likely to be an amendment to our constitution, depriving the court of all power to set aside a legislative enactment dealing with private monopoly. Our courts do not today possess the confidence of the masses, as is evidenced by the favor with which this demand for the recall of judges and the decisions of judges meets whenever it is put to the test of a popular vote. The reason for this is to be found very largely in the disposition of judges, especially of federal judges, to invade the legislative domain and restrain legislative action. In no other civilized land, so far as I know, do courts possess the power to set aside the deliberate act of the legislature, and unless they exercise that power with extreme caution in this land of ours they will be deprived of it.

I have no patience with the idea so persistently urged in certain quarters that no man has any just regard for the rights of property unless he be a judge; that the putting on of a gown, like the anointing of the prophets of old, endues him with some especial spirit of fairness.

The law of the land has declared that the legislative branch

of the government may regulate railway charges. It has provided that the abuse of that power may be restricted by the courts. So long as the power is honestly and fairly exercised, the only relief against it should be by an appeal to the legislature itself. Many years ago I began to urge my railway friends that their true interest lay not in obstructing regulation, but rather in making it fair and intelligent. Every day adds to my conviction that this is profoundly true. Your real protection, gentlemen of the railway world, lies in the intelligence and justice of the regulating body, whatever that may be.

It will come to this: the railway rates of this country will be established by commissions, state and federal, of which the federal commission will be the most significant, both because the rates upon which it acts are of the most consequence and because its decisions will finally command the respect of state commissions. The people will be content to keep their hands off the conclusions of these bodies and will insist in the main that the courts shall be equally respectful. The qualifications of these tribunals is the all-important thing to the railways.

Many years ago I said in jest that if ever the Interstate Commerce Commission was worth owning, the railways would own it. That statement I must retract. The commission has become worth owning, and the railways do not own it. So far as my observation goes, they have never attempted to own it, and let me urge you, gentlemen, to most resolutely persist in this course. If by any chance it should come to be believed that you dominated that body it would be of little service to anybody. Just in proportion as the commission is understood to be and is independent of all influences, both upon the side of the shipper and the railway, it may be of benefit.

PERSONNEL OF THE COMMISSION.

Speaking to the shipper and railway alike, let me say: Put onto that body the strongest men who can be induced to go there. In the past the position has not been especially attractive, but in the future it will be more so. The work is arduous and the responsibility is great, but the position is becoming one of the greatest authority, and the exercise of that authority will finally come to carry with it distinction.

When the proper man is appointed, educate him. Do not call him a fool. You may entertain that opinion, and your opinion may be justified, but, none the less, the process of education is not best conducted in that way. Remember that he is a novice, give him your point of view, get, if possible, his point of view. It may happen that a railway traffic official will himself learn something while educating his commissioner. Let me impress upon you that it is of the greatest importance that you should present accurately and forcefully the considerations which have induced you to make the rates which you defend. I do not say the reasons, because it frequently happens that there are none.

When once you have educated your commissioner, keep him. Even if he be not susceptible of education, according to your way of thinking, still, if he is an honest man, keep him. Age gives to wine a mellowness which nothing else can; time gives to an interstate commerce commissioner ability which nothing else will; he comes to see things from more angles and by a different light. Unconsciously he grows wiser, and without quite knowing how or why, becomes more capable of viewing and deciding. In no places does mere experience count for more.

I do not myself favor a life tenure. The present term is long enough, but reappointment should be a matter of course unless there be some overwhelming reason to the contrary.

What is to be the final effect on railway investments? This is the question to which you desire an answer.

That answer, however, I can give no better than you. When the day of pressure comes, I shall not be there. I know not who my successor will be, nor whom he will have for his associates. Let me, however, state the elements which should determine that answer as they present themselves from my standpoint.

This property of yours is at the foundation of all industrial and commercial activity. Until everything changes, railways will be the same absolute necessity which they are today.

No great railway system today need fear that its business will be seriously invaded by any competitor. The construction of new lines of railway which will seriously interfere with the present flow of traffic is hardly a serious possibility. While the traffic of particular lines may be less, and while there may be serious temporary falling off in the traffic of all lines, broadly speaking, the volume of business transacted by the railways of the United States today will not in the next 100 years decrease.

The character of the business is such, and the conditions under which it is conducted are such, that while transportation charges by rail cannot be indefinitely increased, they can be advanced by the railways, provided the government consents, to a point which will at all times pay munificent returns upon the property invested.

Looking at this matter from all possible angles, there is but one doubtful feature today, and that is the attitude of the government itself. What charges will the Interstate Commerce Commission, if that continues to be the regulating body, permit?

EARNINGS TO BE ALLOWED RAILWAYS.

Every intelligent man knows and must feel that it would be rank injustice to require railway investment to earn less than other investments of the same grade. Every intelligent man must know that to force down railway charges below a fairly remunerative point would so impair the credit of our railways as to prevent them from properly discharging their functions as public servants. When honesty and public interest combine to secure to our railways rates which are fairly compensatory, I cannot believe that this privilege will ever be denied. If the time does come when railway property is sacrificed to popular clamor, when the public demands its confiscation and the regulating tribunal concedes that demand, no property will be of much value. The day will have come when the obligation of private rights is no longer observed.

Please note exactly what I am predicting. It is that under government regulation railway companies will be allowed earnings fairly commensurate with other enterprises of the same class. The happenings of the last fifteen years have entirely changed the character of railway property. No form of investment today is, no form of investment in the future will be, more certain than railway stocks and bonds. As certainty increases, the rate decreases.

I am not saying to you that the average railway dividend of the future will equal the rate of commercial discount. I doubt if it does or should. I am not suggesting for a moment that the income from railway investment will compare with that in manufactures or in commerce, for it ought not to. You should not compare the net proceeds of railways with the proceeds of banks, for example, for the order of the investment is not the same. In the last fifteen years few forms of investment have surpassed banking, but I well remember the time when many of us who owned bank stocks not only lost our entire stock holdings, but were forced to pay assessments of an equal amount. The worst which could happen to the stockholder of any great railway system would be the temporary suspension of dividends, and even this could only occur under very unusual circumstances.

You may not agree, and will not agree with the regulating tribunal as to the amount. My friend Willard, of the Baltimore & Ohio, believes that he should pay his stockholders 6 per cent., and put into his property 1½ per cent. My belief is that 5 per cent. is enough, but I would not find fault if he added to the value of his property 2½ instead of 1½ per cent. In process of time conditions may change so that a rate of return which is today fair will be either too great or too little, but the time never can come, so long as we are a great and civilized people living under a government which respects the rights of private

property, when a legitimate return upon this form of investment will not be permitted.

To my mind the most active storm-center in forecasting the railway future, both as to the investor and the public, is the labor situation.

In the upper stratum of society small progress has been made in the last twenty-five hundred years. Men of the highest intelligence think no better, express themselves no more clearly, live generally in no greater comfort than in the days of Socrates. But in the lower strata the greatest improvement has occurred; and nowhere is the condition of the laboring man probably as good on the whole today as in this land of ours. It is most significant that the English miner is demanding a minimum wage of $1.25 per day, while the anthracite mine workers demand $2.75, if I remember that figure correctly. Even so, it is doubtful whether the laborer yet obtains his proper share of the value of the product which he produces, and, if you can show me any way by which he can be given a greater share, or by which what he earns can be made to maintain him in greater comfort than now, I, for one, stand for it.

WAGES AND RATES.

I believe in organized labor. Capital is of necessity organized, and labor must also organize if it would cope successfully with capital. But combinations of labor, like combinations of capital, are in the nature of monopoly and may be tyrannical and oppressive. No form of labor is more highly organized than railway labor in certain classes, and the very fact of this more perfect organization has enabled that labor to secure, in comparison with other forms of labor, excellent compensation. I do not intimate that railway wages are too high, for I have no thought of that sort. Suppose organized railway labor makes a further demand for increased wages, and that the railways accede to this demand. The increased wage adds to the expense of operation and reduces net revenue. The railway applies to the Interstate Commerce Commission for leave to advance its rates on this account. What, now, is to be the answer of the commission?

The railway rate is paid by the whole body of the public. If, therefore, this increase in wages was unjustifiable, and if on that account an increase in rate is allowed, it results that the general public, including all other forms of labor, is required to pay what is unjust and unreasonable. Must not, therefore, the government be satisfied, not only that the added wages are paid by the railways, but that they are necessarily and properly paid? And is not the railway thus placed in a most unfortunate and embarrassing dilemma?

Consider this matter for a moment now from the public viewpoint. It was recently suggested that certain demands would be made by railway labor in a certain section of this country which would be supported, if not complied with, by a general strike of all classes of trainmen. Such a strike would be altogether possible today. Think for a single moment of the consequences; suffering, riot, death must result. Ought not the public to protect itself against the consequences of such possible action?

We have the Erdman act, and this has given most admirable results, but that is a peace-measure, obligatory upon no one, and of no value in time of war. I have believed that it would finally be found necessary to provide by federal enactment that no strike shall be declared by organized labor upon any interstate railway until the question at issue has been submitted to arbitration, and a certain length of time has intervened after the award, and after notice that the strike would be inaugurated notwithstanding the award. It is doubtful if we could compel either the railways or the employees to comply with the award, but certainly, in view of the stake which the public has, the government may require of the railway, as its servant upon the one hand, and of organized labor, as a condition of its organization upon the other, that the use of these public facilities shall not be interrupted until every attempt has been made to avoid that necessity.

Probably neither party would approve such legislation. The railway manager would say that every arbitration means a compromise; that he must, as a matter of fact, although nominally a free agent, comply with the award, which is probably true, and that, therefore, you take out of his hands the management of his property.

The employee would object because he is thereby to an extent deprived of a weapon of offense in the enforcement of his claim, and since it would be difficult for organized labor to enforce a strike against public opinion in case of an adverse decision.

But is it not after all for the interest of all parties that these questions should be settled by peaceful methods rather than by the waste, the misery, the possible bloodshed of a great strike, and is it not better for both parties that the government should have sanctioned the increase, if one be made, and must, therefore, of necessity sanction the increased rate with which to meet it, if need be?

I have made this suggestion, however, not for the purpose of suggesting a remedy, but simply because the thought has been presented to me as one charged with the regulation of railway rates. It has been to me a difficult question to determine exactly what my duty might be in a case of that sort, and it will come to my successor in precisely the same form. He should, if possible, be relieved from that embarrassment.

PORTABLE ELECTRIC POWER PLANT FOR RAILWAY WORK.*

The locomotive works of the Swiss Federal Railways at Zurich built in 1909 a novel car for generating electric current for the illumination of work in tunnels, under bridges, etc., and for supplying light for cleaning up wrecks at night. This car can travel under its own power. It is fitted with a complete electric generating plant, lamps and a projector, and also with a driving motor. The car was built from a second-hand, four-wheel passenger car, the frame and springs of which were strengthened and the body altered to form two compartments. The weight of the car is 16 tons.

The generating set consists of a vertical four-cylinder gasolene motor, capable of developing 22 h. p. at a speed of 800 r. p. m., and a four-pole, compound-wound-type dynamo capable of generating 13 k. w. at 120 volts and at a speed of 800 r. p. m. The driving motor develops 12 h. p. when running with 120 volts at 400 r. p. m. This allows a speed of 12 miles an hour on the level and three miles an hour on a grade of 1.2 per cent. A speed of 3.1 miles an hour has been attained up a grade of 2 per cent. with 11 passengers on the car. Under ordinary conditions the car, when required at a given point, is attached to a train and hauled to its destination, for it is operated by its own motive power only on the sections on which work is in progress.

The lighting apparatus includes a projector with a parabolic metal mirror 1 ft. 1¾ in. in diameter and taking 20 amperes of current. This projector can be fixed on a stand on the main platform or on a movable stand. Two arc lamps are carried on the roof of the car and serve for lighting work in tunnels. The car is also equipped with four arc lamps used for lighting the track in case of accident, but which may also be fastened to the tops of poles stationed along the track. These poles are supported by wire stays and the current is provided by means of flexible cable, enough of which is carried to light 300 yd. of track. The lighting equipment also includes two rows of incandescent lamps fixed on strips of wood 6 ft. 6 in. long and fitted with semi-cylindrical reflectors, which are used for lighting piers.

This car has been used successfully in the operations involved in taking down the overhead electric installation on the Seebach-Wettingen Electric Railway, which had to be accomplished by night to avoid interruption of the traffic of steam locomotives during the day. It is expected that the car will also be employed in connection with the use of electric drills, rail cutters, etc.

*Abstracted from an article in the March Bulletin of the International Railway Congress Association.

LOCOMOTIVE EXPLOSION AT SAN ANTONIO, TEXAS.

Late reports relating to the Southern Pacific locomotive explosion at San Antonio, Tex., on March 18, state that it caused the death of 28 and injured more than 40 persons. At the time of the explosion the engine was standing outside the engine house near the smith shop, and portions of these buildings were wrecked. Many of the workmen close to the engine and in the shops adjacent were killed by the explosion, or crushed by the falling materials when the walls and roofs fell in.

Fig. 1—Scene of Locomotive Boiler Explosion at San Antonio, Tex.

The photographic illustrations of the scene of the explosion and the different views showing the complete destruction of the engine were furnished at our request by Thornwell Fay, president of the Harriman Lines in Texas and Louisiana, who sent the following description of the conditions of the accident:

"The locomotive in question, No. 704, was a mogul and comparatively new, having been put in service in May, 1908. It had been in the engine house for overhauling for several weeks, and two days prior to the explosion had undergone the annual hydrostatic test, when the boiler was found to be in good condition. Boilers of this type have a working pressure of 200 lbs. The locomotive was fired up on Monday morning, March 18, to take out westbound passenger train No. 9, and a few minutes before the explosion the engineer had taken charge of it to run it to the passenger station for its train. The disaster occurred at 8:53 a. m.

"The hostler who brought the engine out of the engine house testified that he had filled the tank with water, and the oil tanks were also filled, as it was an oil-burning locomotive. When he turned the engine over to the engineer the steam gage registered 190 lbs, and the injectors were working. The engineer tested the gage cocks, looked at the steam gage, and then took his oil can and got down to oil around the engine. The hostler left the locomotive and walked to the engine house, and was hardly inside the building when the explosion occurred. In addition to the statements of the hostler we have other evidence corroborating his testimony, including that of the master mechanic himself, who was on the engine only 15 or 20 minutes before the explosion, at which time the steam gage indicated 145 lbs. He had gone to his office and was detained there a few minutes to sign some requisitions when the explosion occurred. The principal parts of the boiler and machinery were thrown by the force of the explosion quite a distance and in all directions."

The running gear, cylinders and most of the machinery re-

Fig. 2—Showing Damage to Smith Shop and Engine House.

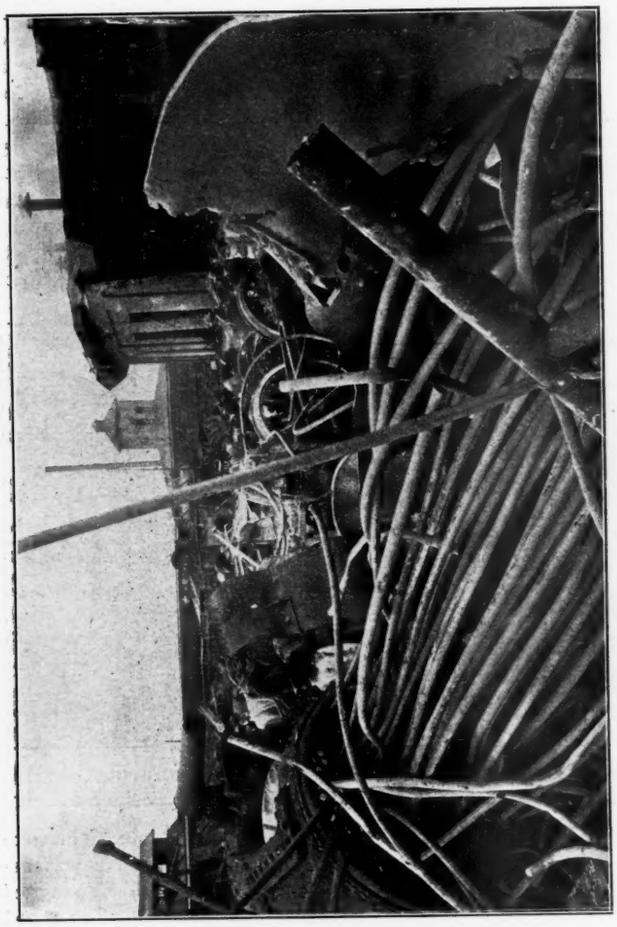


Fig. 4—Tubes, Smokebox and Fractured Edges of Boiler Shell.

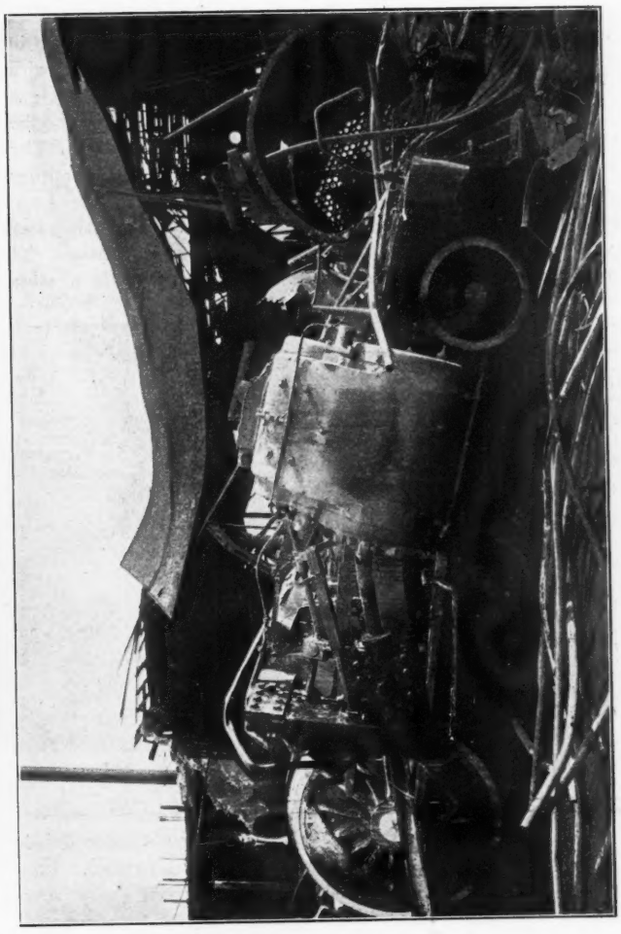


Fig. 6—Cylinders, Crosshead and Engine Track.

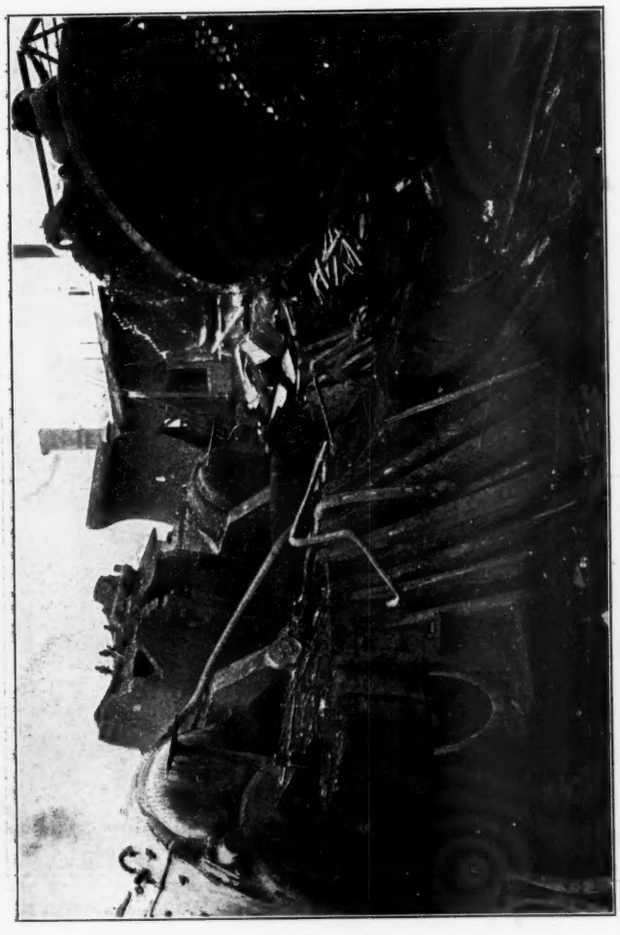


Fig. 3—Fractured Cylinder Saddle; Smokebox at the Right.

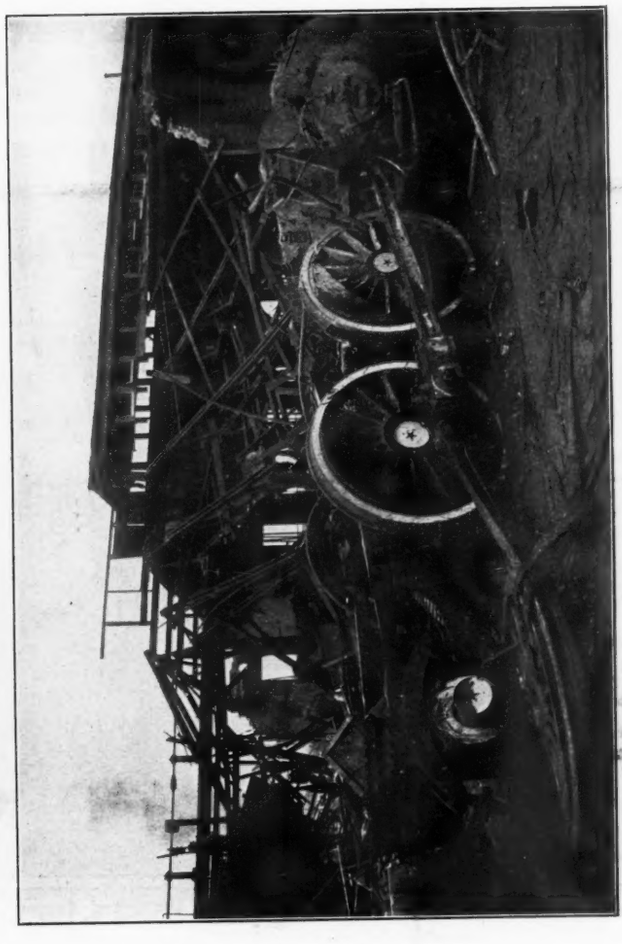


Fig. 5—Right Side of Running Gear.

mained on the track at the place where the engine stood at the time of the explosion, and this is indicated by arrow 1 in the general view (Fig. 1). The position of the smokebox, with many of the tubes, is indicated by arrow 2 in the same view. The firebox and boiler were shattered into small pieces, the dome being projected into a yard some distance away. The tender was driven back 150 ft., and collided with another engine.

The various views taken close to the engine and directly after the explosion serve to illustrate the complete destruction and the results of the terrific forces generated. Fig. 5 is a view of the right side of the running gear, showing the rear driver on that side forced off the axle and the side rod twisted. Portions of the firebox have the sheet stripped from every stay-bolt. The shattered walls and roof of the adjacent shop buildings are seen in the background. Fig. 7 is a view of the left side of the engine, showing the rear driver on that side forced from its axle and thrown forward, bending the side rod into a U shape near the crank pin of the middle driver. The rear axle, 9½ in. in diameter and made of steel, was broken off sharp between the frames. The smokebox, tubes and fractured shell sheets are seen in a position at a right angle to the engine a few feet in front of the cylinders. A close view of the smokebox tubes and the fractured edges of the shell sheet are seen in Fig. 4. In Fig. 8 the right main frame is seen badly bent, and small pieces of the firebox stripped from the stays are piled up betwen the frames. A portion of the fractured shell sheets may be seen at the left, mixed with the debris from the shop where some of the workmen were killed. Fig. 6 shows the right hand cylinders, the guides and piston rod badly distorted, and Fig. 3 the broken cylinder saddle, with the smokebox near by and upside down.

The cause of the explosion was carefully investigated, Chief Boiler Inspector John F. Ensign of the Interstate Commerce Commission having presided at the investigation. He was assisted by the following district inspectors: E. W. Young of Dubuque, Iowa; George E. Dougherty of Houston, Tex.; and John A. Shirley of San Antonio. Mr. Ensign said of the explosion: "I believe it is the worst I have ever seen. I cannot recall an instance where the destruction was so complete and in which the loss of life has been so appalling. The list of injured, too, has been exceptional." Allison Mayfield, chairman of the Texas railway commission, also took part in the inquiry and Mr. Fay and other railway officers assisted the board.

Fig. 7—Left Side of Running Gear, Smokebox, Tubes and Portion of Boiler Shell.

Fig. 8—Portions of Firebox and Distorted Frame; San Antonio, Tex., Locomotive Boiler Explosion.

General News Section.

On April 1 the use of green flags as rear end markers was discontinued on the Rock Island lines.

In a fire at Toronto, Ont., March 27, 270 street cars were burnt up, most of them open summer cars.

Governor Foss, of Massachusetts, has signed a bill increasing the penalty from $5,000 to $10,000 to be imposed on a railway for the loss of life of an employee because of negligence.

The latest returns of the vote being taken by the coal miners in England on whether or not to accept the minimum wage act and return to work indicate that the miners accept and that the strike will be called off.

The Stanley committee has decided to close its hearings after taking the testimony of James Gayley, vice-president of the Steel Corporation, and of Col. Dan. M. Bacon, T. F. Cole and J. Sellwood. These witnesses are to testify about the ore beds of the Mesaba range. Messrs. Morgan, Phipps and Frick will not be called.

Before a legislative committee at Boston, on March 26, railway men, said to represent the Brotherhood of Railroad Trainmen, remonstrated against the granting of rights to the Southern New England Railroad in Massachusetts, because the parent company, the Grand Trunk of Canada, has, as remonstrants allege, dealt unfairly with trainmen who struck some months since.

The bill to provide for workmen's compensation on interstate railways, which was recently recommended by President Taft, and which has been under discussion by the Senate committee, was reported out by the committee this week, the committee having agreed upon the bill as originally presented, with few and slight changes. It is understood that the changes made in committee on the part of the House are also unimportant.

The stoppage of work in the anthracite coal mines at the end of last week has been followed by the laying off of large numbers of trainmen on the Philadelphia & Reading. At the shops of the Erie at Hornell, N. Y., 700 of the 1,000 employees were laid off at the beginning of this week because of the expected diminution of the volume of coal traffic on the company's lines; and a similar suspension of work was ordered at the shops at Salamanca and Meadville.

"Putting a stop to discriminations and secret arrangements with shippers, with all their evil consequences, has helped everybody. Thousands of railway officials and tens of thousands of shippers find it much easier to be honest, and are not only better but happier for it. Thousands of passengers who debauched train conductors by 'short fares' and laughed over it could now be subjected to severe penalties for such practices. All this is a fine contribution by the generation just passing to the young men just coming on the stage; and all who have participated in promoting business integrity ought to have credit."—*Frank Trumbull; Interview in The Outlook.*

Calling attention to the fact that it is unlawful to carry explosives in passenger trains, General Manager G. L. Peck of the Pennsylvania Lines West of Pittsburgh has posted notices printed in German, French, Italian and Polish, to that effect, throughout the mining districts. In addition, a circular is being sent to newspapers, particularly those published in foreign languages, warning users of explosives, and especially miners who are foreigners not conversant with the English language or the requirements of the federal law, that to include packages of explosives in their baggage on passenger trains or in household furniture shipped by freight is unlawful.

The Western Union Telegraph Company announces that henceforth the company will pay pensions to superannuated employees. A person who has served from 20 to 25 years, inclusive, will receive 1 per cent. of his salary multiplied by the number of years of service. For one serving 26 to 35 years, the rate will be 1½ per cent. for the years above 25; 36 to 40 years' service, 2 per cent. for the additional years; after 40 years of service, the universal rate will be 50 per cent. The minimum pension will be $25 a month, and the maximum, $100. President Vail says that the company has a large number of employees who have been in its service a long time, and that the pensions will cost from $300,000 to $500,000 a year.

The demands presented to the managers of the eastern railways by the locomotive enginemen have aroused other employees, and in New York City this week it was given out that station agents, signal men, signal maintainers, and other classes of employees on a number of roads were preparing to ask for increased pay. A conference held in New York, March 31, was said to have represented men on the Pennsylvania, the Philadelphia & Reading, the New York, New Haven & Hartford, the Boston & Maine, and the Rutland. The shopmen of the New Haven have advised the management that they want 15 per cent. more pay. Committees of the conductors' and brakemen's brotherhoods are reported to be preparing requests for changes in pay and in regulations, to be presented to the principal railways of the southeastern states.

Chief Inspector Belnap has made his report on the accident at Kinmundy, Ill., on the Illinois Central, January 22, 1912, when train No. 3 ran into No. 25, while the latter was taking water. The conclusion of the report is that this accident was caused by the failure of the flagman of No. 25 to properly protect his train. The conductor is equally responsible for not knowing that his train was properly protected. A contributing cause was the failure of the engineman of No. 3 to control the speed of his train, so as not to exceed 10 miles per hour while passing through Kinmundy and to comply with the bulletin order requiring the taking of water at that place. An additional contributing cause was the failure of the operator at Edgewood, the station before Kinmundy, to hold train No. 3 until 10 minutes after the passing of train No. 25.

First Aid Packets for Pullman Cars.

The Pullman Company has completed plans for the adoption of emergency packages for first aid to the injured, which will be installed in all of the cars of the company during the next few weeks. The first aid package consists of a small box 5 in. x 3 in. x 1 in., containing a small supply of sterilized lint, bandage and pins, intended to answer the purpose of a primary dressing, and to remain in place only until the person injured may be able to receive the care of a surgeon. Six of these units will be packed in a carton and will be a part of the equipment of every car. An attempt has been made to bring the first aid package to the greatest possible simplicity in order that it may be available for use by persons who may be entirely untrained in the application of surgical dressings. Although the purpose of the contents will be apparent to anyone in whose hands it is placed, the package contains a few simple directions. A somewhat similar, though rather more complicated first aid package has been in use by the company for a long time in its cleaning yards and other places where workmen are employed, and its usefulness has been demonstrated. It is now proposed to substitute in this service packages similar to those to be installed in the cars.

Steel Postal Car Specifications.

The Special Committee on the Relations of Railway Operation to Legislation has issued Bulletin 29, containing a full report of the conference committee, which co-operated with the post office department in formulating uniform specifications for steel postal cars. As noted in the *Railway Age Gazette* of March 1, page 394, the most important change from the original specifications, which were published in the *Railway Age Gazette* of November 4, 1911, page 1049, was increasing the section moduli of the vertical end members from 35 to 65. Paragraph 29 referring to the floor was also changed to read as follows: "Sub-floor of postal cars to be of iron or steel plate, upper or wearing surface to be of matched wooden flooring, maple or rift-sawed yellow pine or fir, laid longitudinally, or composition, preference in order named. If composition is used, the wearing surface between doors and the standing surface in front of letter tables and paper racks shall be of wood, cork or other suitable material. Proper insulation, including air space, should be provided between upper and lower courses. Floor strips for wood upper

course should be bolted to sub-floor. Composition flooring may be secured by corrugated, keystone, or equivalent style of plate or by wire fastening, anchored to sub-floor."

The bulletin also contains specifications covering fixtures in mail cars, which were prepared by the post office department committee and were informally discussed in the conference. The latter includes detailed descriptions of the distributing tables under letter cases, letter cases, racks for sacks and pouches, paper distributing tables and dumping tray, paper boxes in all mail cars, small cases for slips, portable bins for letter packages, gage for registered mail, order box, hoppers, lavatory, water tanks, wardrobe and mirror, wrecking tools, fire extinguishers, gas plate or steam cooker, cots, stools, deodorants and disinfectants, toilet paper, door fixtures, lighting, rakes for paper boxes, catcher arms, safety bars, cinder guards, safety rods, letter drops and movable stanchions. Both the specifications for the construction and for the fixtures have been referred to the second assistant postmaster general for approval.

Illinois Commission Sees Improvement in Relations Between Carriers and Public.

It is with a degree of satisfaction that we are able to say that the general feeling between the manufacturer, shipper, the people and the common carriers of Illinois is much better than heretofore, and that they are co-operating together with much less friction than at any former time. It is gratifying to the commission to be able to say, from information gathered by the commission throughout the state, that the people today are being, generally speaking, better served by the railways and common carriers (with a few exceptions), both in point of train service and car supply, than at any other previous time. No serious car shortage has been brought to the attention of the commission, except of a temporary character. And shippers located upon even smaller lines have been taken care of better than in times past. This condition arises not from a decrease in business, either freight or passenger, but from a strong effort on the part of the common carrier to give better service, and because of the greater efficiency of the equipment on the part of the carrier.

Your commission believes that one of the difficulties in the past has been that the people and the managers of the common carriers did not mutually understand each other and were working separately for their own interest, rather than working together mutually for the interest of both. By bringing the business men of the state in closer touch with the officials of the common carriers we have been able to bring about a better understanding and many improvements in service that could not have been otherwise brought about. The time has come in the business world for all interests to understand and act upon the theory that each business is more or less dependent upon the other and that there is ample room for all, and the success of any independent business is dependent, in a large measure, upon the success of the other business of a similar character.

Greater publicity of the working of the common carriers by them given to the public will naturally create a better knowledge of conditions, and when the public understands fully the conditions they will be just in their demands in relation to service and the common carrier will have no trouble in receiving at the hands of the people a just compensation for the character of the service rendered the public. And it is along these lines that a commission can render valuable service to the public generally. The regulation of the common carrier by commission is one of the growing reforms of the day, and in a very large measure it is being recognized both by the people at large and the common carrier.—*From the annual report of the Illinois Railroad & Warehouse Commission.*

Governors Before the Supreme Court.

The Supreme Court of the United States on Monday last heard arguments on the twenty or more cases before it, which bring in question the conflicting authority of federal and state laws in relation to railway rates, and the governors of a number of states filed a protest with the court against the proposition to make the federal authority paramount in disputed cases as set forth in the decision of the Circuit Court (Judge Sanborn) in the Minnesota case. This is the first time in the history of the nation that such a protest has been made.

The protest took the nature of a brief filed as "friends of the court" by a committee of governors, Judson Harmon, of Ohio; Herbert S. Hadley, of Missouri, and Charles H. Aldrich, of Nebraska, selected at a conference of governors last September.

The United States Circuit Court in the Minnesota freight and passenger rate cases held that the rates prescribed by state authority were invalid not only as confiscatory, but by reason of their effect on interstate commerce; and this was taken as the text for the governors' protest. It was declared that what was said went directly to the right of every state to regulate state commerce, and the argument is applicable to the Minnesota, Missouri, Oregon, Kentucky, Ohio, Arkansas and West Virginia rate cases now before the court.

Minnesota had required the railways to reduce their rates from St. Paul to Duluth, on the state boundary; at once the interstate business from St. Paul to Superior, Wis., just across the line from Duluth, was affected. Similar conditions were to be found in Kansas City, Kan., and Kansas City, Mo.; East St. Louis, Ill., and St. Louis, Mo.; Omaha, Neb., and Council Bluffs, Iowa; Cincinnati, Ohio, and Covington and Newport, Ky. The vice of the Minnesota decision, it was urged, was not in an incorrect statement of Minnesota geography, but in the plain disregard of the provisions of the federal constitution, which established the relation of the nation and the state by giving one control over interstate matters and the other control over state affairs. It was admitted that there might be some effect on interstate commerce when states regulate state rates, but if a railway enjoys a reasonable return under state rates, it enjoys every right to which it is entitled.

"The test cannot be," declare the governors, "whether the effect of fixing the local rates may or will be to lead the railways to lower their interstate rates, but whether the local rates are fair and reasonable, for if they are so and the sum of them is so much lower than the interstate rates as to lead shippers to take the trouble and risk of rebilling or reshipping at state lines, this is a perfectly lawful condition, the advantage of which the public is entitled to enjoy. And as the cost and convenience of carriage in that way can be no less, but, as is well known, would rather be greater, the advantage would remain with the through rate even if it were reduced so as to equal the sum of the local rates. The railways cannot invoke the commerce clause of the federal constitution to shield themselves against fair and reasonable rates fixed by a state for its own internal business. The effect of these on interstate rates is not only incidental and indirect, but also legitimate under the dual form of government through which we enjoy happiness and prosperity beyond compare. . . .

"The right of a state to regulate, extends to every business conducted within its borders, though such business may also extend into interstate commerce. . . . If the doctrine is to be that the laws of trade may make the performance of a lawful duty by a state in the regulation of corporations doing business therein a regulation of interstate commerce, who is to prescribe the test or rule for applying it? The rate cases involve no conflict between state and federal authority; it is a controversy between the states and the railways. . . . The effect of the decision is not to take power from the states and leave it with Congress, but to take power from the states and leave the railways free to charge whatever rates they please in their traffic within the states; for if the states cannot regulate these rates nobody can. It is not always easy to find the line which separates the domain of public authority from that of private right. But this is not so hard as it would be to trace the indirect effects of regulation by the states and by Congress back and forth across the boundary of their respective jurisdictions."

Discussing the broad questions of state and interstate commerce the governors say:

"In this, as in all other cases where inconvenience arises from the division of powers between state and nation, the only safe and sure reliance is in the intelligence, resourcefulness, patience, and common interest of the American people. They will adjust their business to conditions which result from the form of government they have themselves adopted and require their agents in each branch to co-operate harmoniously and heartily.

"Only the short-sighted, and they are relatively few, will believe that commerce among the states can gain any real or lasting advantage at the expense of local commerce, or that local commerce can thrive long, if at all, from interference with general commerce, even though, by the indirectness of its effect,

such interference may escape the condemnation of the law."

Briefs similar to that presented by the governors were filed by permission of the court by the attorneys general of South Dakota, Nebraska, Iowa, Kansas, Alabama and Oklahoma and by the railway commissions of Nebraska, Iowa, Kansas, South Dakota, North Dakota, Oklahoma, Missouri and Texas.

Bill for Physical Valuation of Railways.

The House committee on interstate commerce has favorably reported the Adamson bill for the physical valuation of railways. The report was unanimous. The full text of the bill follows:

That section 19 of an act entitled "An Act to Regulate Commerce," approved February 4, 1887, and all acts amendatory thereof, and to enlarge the powers of the Interstate Commerce Commission, be amended by adding thereto a new section, to be known as section 19 A, and to read as follows:

Sec. 19 A. That the commission shall investigate and ascertain the value of the property of every common carrier subject to the provisions of this act and used by it for the convenience of the public. For the purpose of such an investigation and ascertainment of value the commission is authorized to employ such engineers, experts, and other assistants as may be necessary, who shall have power to administer oaths, examine witnesses and take testimony. The value shall be ascertained by means of an inventory which shall list the property of every common carrier subject to the provisions of this act in detail, and shall classify the physical elements of such property in conformity with the classification of expenditures for road and equipment, as prescribed by the Interstate Commerce Commission.

In such investigation said commission shall have authority to ascertain and report, in such detail as it may deem necessary and to each piece of property owned or used by said common carrier the original cost for railway purposes, the cost and value to the present owner, and what increase in value is due to cost of improvements. Such investigation and report shall also show separately that property actually used in transportation and that held for other purposes, and shall contain a statement of the elements forming the basis of the estimate of value. They should also show, as the commission may deem necessary, the history of the organization of the present corporation operating such property or of any previous corporation operating such property in such detail as may be deemed necessary, and any increases or decreases of capital stock in any reorganizations and moneys received by any of such corporations by reason of any issue of stocks, bonds or other securities, or from the net and gross earnings of such companies, and how the moneys were expended or paid out for the purposes of such payments.

The said investigation and report shall also show the amounts and dates of all bonds outstanding against each public service corporation and the amounts paid therefor, and the names of all stockholders and bondholders, with the amounts held by each, and also the name of each director on each board of directors; and find and report the facts as to the connection of any bank or bankers, capitalist or association of the capitalists or financial institution or holding company with the ownership, manipulation, management or control of any stocks and bonds of any such company, and the transactions and connections of any bank or banker, financier, financial institution or holding company with the reorganization of any such company in recent years.

The commission shall have power to prescribe the method of procedure to be followed in the conduct of the investigation, the form in which the results of the valuation shall be submitted and the classification of the elements that constitute the ascertained value, and such investigation shall show the value of property of every common carrier as a whole and the value of its property in each of the several states and territories and the District of Columbia.

Such investigation shall be commenced not later than July 1, 1912, and shall be prosecuted with diligence, and thoroughness, and the result thereof reported to Congress at the beginning of each regular session thereafter until completed.

Every common carrier subject to the provisions of this act shall furnish to the commission or its agents from time to time, and as the commission may require maps, profiles, contracts, reports of engineers, and any other documents, records and papers, or copies of any or all of the same, in aid of such investigation and determination, value of the property of the said common carrier and shall grant to all agents of the commission free access to its right of way, its property and its accounts, records and memoranda whenever and wherever requested by any such duly authorized agent, and every common carrier is hereby directed and required to co-operate with and aid the commission in the work of the valuation of its property in such further particulars and to such extent as the commission may require and direct, and all rules and regulations made by the commission for the purpose of administering the provisions of this section and section twenty of this act shall have the full force and effect of law.

Upon completion of the valuation herein provided for, the commission shall thereafter in like manner keep itself informed of all extensions and improvements or other changes in the condition and value of the property of all common carriers and shall ascertain the value thereof, and shall from time to time, as may be required for the proper regulation of such common carriers under the provisions of this act, revise and correct its valuation of property, which shall be reported to Congress at the beginning of each regular session.

To enable the commission to make such changes and corrections in its valuation every common carrier subject to the provisions of this act shall report currently to the commission and as the commission may require, all improvements and changes in its property, and file with the commission copies of all contracts for such improvements and changes at the time the same are executed.

Whenever the commission shall have completed the valuation of the property of any common carrier, and before said valuation shall become final, the commission shall give notice by registered letter, to the said carrier stating the valuation placed upon the several classes of property, of said carrier, and shall allow the carrier thirty days in which to file a protest of the same with the committee. If no protest is filed within thirty days said valuation shall become final.

If notice of protest is filed by any common carrier, the committee shall fix a time for hearing the same, and shall proceed as promptly as may be to hear and consider any matter relative and material thereto which may be presented by such common carrier in support of its protest and filed as aforesaid. If after hearing any protest of such valuation under the provision of this act, the committee shall be of the opinion that its valuation is incorrect, it shall make such changes as may be necessary, and shall issue an order making such corrected valuation final. All final valuations by the committee and the classification thereof shall be published and shall be prima facie evidence relative to the value of the property in all proceedings under this act.

The provisions of this section shall apply to receivers and carriers and operating trustees. In case of failure or refusal on the part of any carrier, receiver, or trustee to comply with all the requirements of this act and in the manner prescribed by the committee, such carrier, receiver, or trustee shall forfeit to the United States the sum of five hundred dollars for each such offense, such forfeitures to be recoverable in the same manner as other forfeitures provided for in this act.

The district courts of the United States shall have jurisdiction upon the application of the attorney-general, at the request of the committee, alleging a failure to comply with or a violation of any of the provisions of this act by any common carrier, to issue a writ or writs of mandamus commanding such common carrier to comply with the provisions of this act.

Good Roads.

The Department of Agriculture calculates that 300,000 miles of road must be improved before the public road system of the country will be of enough consequence to be appreciable. There are now but 190,476 miles of improved roads in this country, or 8.66 per cent. of the total mileage of all public roads, improved and unimproved. The French system of roads, long considered the best in the world, was bonded by Napoleon III for $6,000,000, and something in the neighborhood of $612,775,000 has already been spent on that system. In this country probably $2,000,000,000 will have to be spent before a proper road system is developed. This, however, does not seem so large when it is divided among the states and spread over a period of ten or fifteen years. New York state has bonded itself for $50,000,000, and $5,000,000 a year is now being expended by that state. New York heads the list of states which have made

progress. Georgia is second, and has built 4,344 miles of road in five years. That state employs 4,500 prisoners on the public roads.

American Electric Railway Association.

The officers of the American Electric Railway Association are planning to make a six weeks' trip through the country this spring in the interest of the association. The trip has the entire co-operation of the American Electric Railway Manufacturers' Association, several of whose principal officers will accompany the party. Starting from New York, April 17, it is proposed that the trip shall include a visit to central points in the South, Southwest, Middle West, Pacific slope and extreme Northwest. The object of the trip is to show the interest of the association in its member companies and members generally, located so far from the home office of the association and from its usual convention sites, that they are not kept in close touch with the affairs of the association.

M. M. and M. C. B. Conventions.

Following its usual custom, the Pennsylvania lines will provide a special train, to be known as the Master Car Builders' special, for the accommodation of delegates to the conventions of the American Railway Master Mechanics' Association, the Master Car Builders' Association and the Railway Supply Manufacturers' Association, to be held at Atlantic City, N. J., June 12-19. The train will leave Chicago at 3 p. m., Monday, June 10, and will arrive at Atlantic City at 2 p. m. on the following day. Summer tourist rates will be charged. Accommodations may now be reserved at the ticket office at 242 South Clark street, Chicago, and may be held until June 3.

American Society of Civil Engineers.

At the meeting of the American Society of Civil Engineers, held April 3, a paper by Louis H. Shoemaker, M. Am. Soc. C. E., entitled A Four-Track Center-Bearing Railroad Draw Span, was presented for discussion. This paper was printed in the *Proceedings* for March, 1912.

Maintenance of Way Master Painters' Association.

The Maintenance of Way Master Painters' Association will hold its annual convention in the assembly room of the Permanent manufacturers' Exhibit of Railway Supplies and Equipment in the Karpen building, Chicago, on November 19, 20 and 21.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.; annual, May 7-10, Richmond, Va.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Boston, Mass.; annual, May 10-11, San Francisco, Cal.

AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—W. C. Hope, New York; next convention, Seattle, Wash.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.; annual, June 18-21, Detroit, Mich.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew building, Cincinnati, Ohio; 3d Friday of March and September.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York. Convention, October 7-11, Chicago.

AMERICAN ELECTRICAL RAILWAY MANUFACTURERS' ASSOC.—George Keegan, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York. Next session, May 15, New York.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago. Convention, 3d week in Oct., Baltimore, Md.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, Monadnock Block, Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOC.—J. W. Taylor, Old Colony building, Chicago. Convention, June 17-19, Atlantic City, N. J.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—M. H. Bray, N. Y. N. H. & H., New Haven, Conn. Convention, July 9, Chicago.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.

AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—J. R. Wemlinger, 13 Park Row, New York; 2d Tuesday of each month, New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md. Convention, 3d week in January, 1913, Chicago.

ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; annual, June 26, 1912, Quebec, Que.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; annual convention, May 22, 1912, Los Angeles, Cal.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry. Chicago. Semi-annual, June 11, Atlantic City, N. J.; annual, October 21-25, Chicago.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; annual, June 24, 1912, New York.

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conrad, 75 Church St., New York. Convention, Oct. 7-11, Chicago.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.

ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.; annual, May 15, Buffalo, N. Y.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.

INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago. Convention, May 22-25, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, Brown Marx building, Birmingham, Ala. Convention, July 23-26, Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Convention, August 15, Chicago.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York; annual convention, May 14-17, Pittsburgh, Pa.

MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago. Annual convention, June 12-14, Atlantic City, N. J.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass. Convention, September, 10-13, Denver, Col.

NATIONAL RAILWAY APPLIANCES ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.

NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.

NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.

NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.

OMAHA RAILWAY CLUB.—H. H. Maulick, Barker Block, Omaha, Neb.; second Wednesday.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria, Ill.; 2d Tuesday.

RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 2 Rector St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc. Ry. Elec. Engrs.

RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.; next meeting, August 13-16, Roanoke, Va.

RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; annual, May 12, 1912, Kansas City, Mo.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.

RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio. Convention, May 20-22, Buffalo, N. Y.

RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver Bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. assocs.

RAILWAY TEL. & TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.

RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. Y., Sterling; September, 1912, Buffalo, N. Y.

ST. LOUIS RAILWAY CLUB.—B. W. Fraumenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meetings with annual convention Railway Signal Association.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.

TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.

TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.

TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.; August, 1912.

WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.

WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News.

The bill to abolish the Commerce Court, which has been before the House committee on interstate and foreign commerce for several weeks past, was favorably reported to the House on March 29. It is said that the republican members of the committee will present a minority report.

Assistant Attorney-General Stevenson, of Minnesota, has given the Minnesota railway commission an opinion that it is not unlawful for a public officer who is a railway man to ride on a pass while in the performance of railway work, but that it would be unlawful for him to use the pass in the performance of any duty outside of his regular work.

At a conference of shippers of Spokane, Wash., and traffic officials of the Great Northern, Northern Pacific, Spokane, Portland & Seattle, and the Harriman Lines last week it is reported that an understanding was reached that after the Supreme Court has rendered its decision in the transcontinental rate cases the rate adjustment affecting Spokane will be made the subject of negotiations between the railways and the shippers direct for the purpose of avoiding further litigation on the subject.

The Canadian Pacific has decided to increase its facilities at St. John, N. B., by building a third grain elevator, to have a capacity of 1,000,000 bushels. Work has already been started on the foundation of the building. The company has bought 40 acres of mud flats near Sand Point, which is to be reclaimed and used as a site for yards and tracks, and the Dominion government has given a contract for building a new wharf to cost $800,000 for the use of the Canadian Pacific at Sand Point.

The commercial movements of live stock in February, 1912 at the seven principal interior markets, Chicago, Kansas City, Omaha, St. Louis, St, Joseph, St. Paul, and Sioux City, as reported to the Bureau of Statistics of the Department of Commerce and Labor, show a steady increase as compared with the receipts during the same month of the two preceding years. The total receipts in February, 1912, were 3,815,896 head, a gain of over 20 per cent. when compared with 3,159,118 head received in February, 1911, and of over 38 per cent. when compared with 2,763,204 head received in February, 1910. The receipts in February, 1912, were less than in the preceding month, but greater than in December, 1911. These live stock receipts included cattle, calves, hogs, sheep, horses, and mules.

Express Rate Bill Reported.

The House Committee on Interstate Commerce has reported favorably the Adamson bill fixing maximum express rates. The rates named are for the transportation and delivery of packages not more than 11 lbs. and valued at not more than $80, and apply whether the transportation occurs on the line of a single express company or on a through rate or shipment operated by two or more connecting express companies.

The rates fixed by the bill are as follows:

Between any two points in the United States more than 2,000 miles apart, 12 cents per lb.

Between any two points not more than 2,000 miles apart, 10 cents per lb.

Between any two points not more than 1,200 miles apart, seven cents per lb.

Between any two points not more than 800 miles apart, five cents per lb.

Between any two points not more than 600 miles apart, four cents per lb.

Between any two points not more than 250 miles apart, two cents per lb., provided that express companies shall not be required to carry any parcel for less than 10 cents.

It is further provided that express companies must work in connection with the rural mail routes, receiving and delivering packages to mail agents and patrons on those routes.

Chicago Railway Associations in Joint Headquarters.

The Chicago General Managers' Association has decided to join with the principal traffic associations having offices in Chicago in moving into joint headquarters in the Heisen building, Dearborn and Harrison streets, in accordance with the plan announced in the *Railway Age Gazette* of December 8, 1911. The General Managers' Association now has offices in the Western Union building, and its removal includes the Association of Western Railways, the General Superintendents' Association, the Local Freight Agents' Association, and the Terminal Superintendents' Association. A five-year lease has been taken of the eighteenth, nineteenth, twentieth and twenty-first floors of the building, having a total of 50,000 sq. ft. of floor space, and a total saving in rentals of $28,000 a year will be affected as it will be possible to make joint use of meeting and committee rooms instead of maintaining separate meeting rooms as at present at the headquarters of each association. The General Managers' Association is moving this week. The Central Freight Association, the Central Passenger Association and the Transcontinental Passenger Association, have already moved into the new quarters, and the other associations will do so this month. These are the Transcontinental Freight Bureau, the Western Passenger Association, the Western Trunk Line Committee, the Uniform Classification Committee, the Western Classification Committee and the Western Railway Weighing Association and Inspection Bureau, together with various lesser associations that hold their meetings at the quarters of the larger associations. In recognition of the fact that the building will now be an important center for railway activity, it is proposed to change the name to the Transportation building.

INTERSTATE COMMERCE COMMISSION.

The commission has been considering the regulations governing the issue of passes and has ordered that the regulations, made effective January 1, 1912, be amended by the insertion of a provision that railways at their option permit their principal officers to issue passes to employees who may lawfully be entitled to them without requiring written requests, on condition that receipts for the passes be required which will contain the information required previously in the application for the pass.

Reparation Awarded.

Republic Metal Ware Co. v. Erie et al. Opinion by the commission:

The rate on 15 carloads of stamped ware from Buffalo, N. Y., to Pacific coast terminals unreasonable. (22 I. C. C., 265.)

Ludowici-Celandon Co. v. Missouri Pacific et al. Opinion by the commission:

The initial carrier failed to obtain definite instructions, and is therefore liable for misrouting. (22 I. C. C., 588.)

Reparation Denied.

Edward Byrnes, trustee for H. Woods Co., bankrupt, v. Atchison, Topeka & Santa Fe et al. Opinion by the commission:

Weights applied on one-third size crates of cantaloupes from Colorado not found to have been unreasonable. (22 I. C. C., 585.)

Complaint Dismissed.

Paul Stiritz v. New Orleans, Mobile & Chicago et al. Opinion by the commission:

The rate on cross ties from Houston, Miss., to Cairo, Ill., is not found to be unreasonable. (22 I. C. C., 578.)

C. M. McClung & Co. v. Southern Ry. Opinion by the commission:

The rates on L. C. L. shipments of boat spikes shipped with railway spikes from Richmond, Va., to Knoxville, Tenn., not found to be unreasonable. (22 I. C. C., 582.)

A. Priesmeyer Shoe Co. v. Chicago & Alton et al. Opinion by the commission:

Rates on leather from eastern points of origin to Jefferson City, Mo., not unreasonable. (23 I. C. C., 72.)

Alabama Lumber & Export Co. v. Louisville & Nashville et al. Opinion by the commission:

There is nothing to show that the shipment in question was misrouted. (23 I. C. C., 78.)

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF JANUARY, 1912.

Name of road.	Mileage operated at end of period.	Operating revenues: Freight.	Passenger.	Total, inc. misc.	Operating expenses: Maintenance: Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.	Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
Belt Ry. Co. of Chicago	21	.....	.....	$191,487	$10,276	$23,974	$438	$98,476	$4,116	$137,280	$54,207	.....	$18,309	$35,898	—$23,605
Buffalo, Rochester & Pittsburgh	572	$657,867	$70,173	746,252	61,659	151,115	10,026	279,488	17,983	520,271	225,981	$249	17,000	209,230	—4,225
Chicago, Indianapolis & Louisville	616	325,270	110,130	482,985	73,036	77,224	16,629	211,851	15,224	393,964	89,021	.....	22,652	66,369	—5,031
Central Vermont	411	197,614	63,670	286,014	25,994	68,651	7,449	174,107	8,586	284,787	1,227	—82	12,200	—11,055	—66,108
Kansas City, Mexico & Orient	809*	97,724	27,537	133,536	34,056	17,965	8,727	70,404	9,830	140,982	—7,446	.....	6,750	—14,196	—5,295
Spokane, Portland & Seattle	550†	166,797	102,381	296,354	37,879	40,123	6,296	104,471	11,872	200,641	95,713	994	27,205	69,502	21,908
Western Maryland	543	446,960	53,498	523,364	37,623	77,864	8,169	238,537	21,254	383,447	139,917	—50	21,000	118,867	—68,452
MONTH OF FEBRUARY, 1912.															
Atchison, Topeka & Santa Fe	8,201[1]	$4,830,102	$1,852,945	$7,252,103	$998,797	$1,111,470	$159,877	$2,323,428	$149,997	$4,743,569	$2,508,534	.....	$301,369	$2,207,165	$322,651
Atlantic & St. Lawrence	167	92,750	18,670	123,235	15,268	18,275	4,801	85,862	3,971	128,177	—4,942	.....	6,659	—11,601	34,857
Atlantic Coast Line	4,527[2]	2,002,625	833,738	3,043,542	372,420	417,204	46,165	1,042,197	72,425	1,950,411	1,093,131	.....	107,000	986,131	—128,095
Baltimore & Ohio Chicago Terminal	77	.....	1,912	99,890	11,005	18,579	713	70,543	3,611	104,451	—4,561	$868	18,206	—21,899	—11,856
Bangor & Aroostook	627	249,355	39,306	302,858	48,123	32,810	3,177	103,095	10,751	197,956	104,902	.....	10,375	94,527	2,222
Bessemer & Lake Erie	203[3]	246,181	18,937	280,901	43,793	128,857	7,036	125,709	7,754	313,149	—32,248	.....	9,000	—41,248	—49,712
Boston & Maine	2,242[4]	2,120,774	970,876	3,339,112	351,813	485,291	33,711	1,715,328	77,976	2,664,119	674,993	12,834	173,186	514,641	251,327
Buffalo, Rochester & Pittsburgh	572	685,165	64,979	766,204	81,336	146,947	9,301	270,481	15,911	523,976	242,228	—48	17,000	225,180	14,202
Canadian Pacific Lines in Maine	233	109,271	27,476	149,371	14,308	22,780	8,055	78,633	4,043	127,819	21,552	.....	7,000	14,552	4,752
Central New England	276	256,198	21,288	291,507	25,090	26,437	1,089	87,259	2,376	142,251	149,256	—1,572	9,000	138,684	57,086
Charleston & Western Carolina	341	140,284	22,972	169,779	30,516	28,679	3,174	71,380	5,453	139,202	30,577	.....	5,000	25,577	—48,570
Chicago & Eastern Illinois	1,275	910,933	214,920	1,216,725	114,941	287,559	31,062	537,046	39,801	1,010,409	206,316	—1,725	37,500	167,091	—142,586
Chicago & Northwestern	7,928[5]	3,458,745	1,335,212	5,347,785	606,410	828,796	101,633	2,754,067	134,448	4,425,354	922,431	—9,386	275,000	638,045	—423,067
Chicago, Milwaukee & Puget Sound	2,059[6]	946,759	139,513	1,143,187	103,261	192,858	46,557	462,822	24,007	829,505	313,682	2,735	137,049	179,368	—56,491
Chicago, Milwaukee & St. Paul	7,511[7]	3,490,901	856,823	4,903,318	396,758	853,695	107,403	2,519,819	94,673	3,972,348	930,970	—29,455	250,250	651,265	104,763
Chicago, Peoria & St. Louis	255	116,079	20,729	143,570	17,824	28,309	7,192	69,449	5,946	128,720	14,850	.....	4,300	10,550	8,692
Chicago, Rock Island & Pacific	7,552[8]	3,310,122	1,183,471	4,810,374	505,614	697,824	157,628	2,260,424	132,444	3,753,934	1,056,440	—16,189	225,173	815,078	85,047
Chicago, St. Paul, Minneapolis & Omaha	1,744	745,491	313,479	1,131,368	83,688	169,495	29,858	594,574	32,111	909,726	221,642	—1,774	61,948	157,920	—174,248
Cincinnati, Hamilton & Dayton	1,014	517,240	106,744	697,155	73,002	144,740	18,664	342,331	18,275	597,012	100,143	.....	24,699	75,444	53,629
Cumberland Valley	162	168,548	45,491	226,618	37,567	34,391	4,317	88,802	6,688	171,765	84,853	298	5,612	49,539	—24,031
Delaware & Hudson Co.—R. R. Dept.	851[9]	1,597,978	165,296	1,804,389	158,795	263,150	29,176	673,212	47,835	1,172,168	632,221	—4,216	49,000	579,005	186,945
Delaware, Lackawanna & Western	958[10]	2,103,600	489,197	2,763,755	216,644	498,582	66,420	937,441	64,294	1,783,381	980,374	8,372	168,940	819,806	40,989
Denver, Northwestern & Pacific	215	57,976	7,985	69,875	14,070	17,834	1,826	34,283	3,731	71,744	—1,869	.....	3,500	—5,369	—7,239
Detroit & Mackinac	358[11]	67,721	18,603	92,018	9,341	17,279	2,042	34,269	3,286	66,217	25,801	—198	8,255	17,348	11,119
Detroit, Toledo & Ironton	441	145,499	9,233	165,294	31,093	18,582	2,743	87,250	5,081	144,749	20,545	.....	5,000	15,545	21,238
Duluth & Iron Range	200[12]	87,954	17,902	113,998	34,185	44,231	728	71,795	8,468	159,407	—45,409	—3,468	4,534	—53,411	2,544
El Paso & Southwestern Co	902	548,329	83,605	668,588	81,946	92,008	12,509	187,797	22,840	397,100	271,488	—1,550	22,238	247,700	52,970
Elgin, Joliet & Eastern	841[13]	807,244	2	849,214	75,765	155,882	4,706	279,999	13,028	529,380	319,834	.....	23,650	296,184	182,141
Florida East Coast	630[14]	175,557	306,487	548,757	49,638	46,355	9,087	172,080	8,811	285,971	262,786	—1,077	15,500	246,209	19,082
Fort Worth & Denver City	454	261,226	87,117	368,579	49,318	73,716	6,298	139,684	14,624	283,640	84,939	—759	10,292	73,888	17,466
Grand Rapids & Indiana	586[15]	259,255	89,394	375,034	48,897	70,789	10,668	193,952	14,184	338,490	36,544	—409	23,365	12,770	—4,938
Grand Trunk Western	347	328,000	120,000	476,010	41,836	76,850	18,728	236,293	14,403	388,110	87,900	—2,120	31,635	54,145	—7,193
Gulf & Ship Island	307	123,825	29,097	165,461	22,471	27,215	2,409	49,523	8,698	110,316	55,145	.....	5,336	49,809	9,241
Gulf, Colorado & Santa Fe	1,597[16]	740,980	175,922	984,255	126,697	166,056	27,086	421,134	31,312	772,285	211,970	.....	42,929	169,041	114,079
Illinois Central	4,755[17]	3,116,809	994,391	4,690,885	351,909	1,165,864	138,354	2,108,653	130,543	3,895,323	795,562	—6,978	210,314	578,450	—477,139
Kansas City Southern	827	584,960	113,445	778,103	83,992	87,936	26,899	286,457	33,595	518,879	259,224	.....	30,160	229,064	30,855
Lake Erie & Western	886	359,666	55,907	438,801	61,796	80,941	12,344	193,165	10,769	359,015	79,786	.....	19,000	60,786	38,057
Lake Shore & Michigan Southern	1,775[18]	2,779,483	756,800	3,965,557	431,468	688,583	76,372	1,502,593	67,067	2,766,083	1,199,474	—5,547	140,000	1,053,927	469,282
Lehigh & Hudson River	97	148,534	2,921	152,351	10,315	19,506	1,065	50,880	4,199	85,965	66,386	.....	3,500	62,886	36,846
Lehigh Valley	1,449[19]	2,624,438	257,955	2,968,954	354,713	560,607	71,556	1,070,104	65,258	2,122,238	846,716	—25,004	131,000	690,712	47,096
Long Island	399[20]	235,615	380,424	645,043	97,718	104,021	7,195	400,980	10,797	629,711	15,332	10,946	26,278	56,450	—30,172
Louisiana & Arkansas	255	119,603	13,841	137,825	18,193	21,103	2,302	38,158	4,539	84,295	53,530	.....	4,233	49,297	6,663
Louisville & Nashville	4,705[21]	3,479,489	953,089	4,687,043	718,785	784,355	97,924	1,579,645	91,839	3,272,548	1,414,495	—1,113	150,617	1,262,765	357,759
Michigan Central	1,817[22]	1,613,576	472,887	2,311,431	243,038	354,483	58,679	1,085,205	42,792	1,784,197	527,234	—720	116,000	410,514	142,081
Maine Central	1,204[23]	582,307	179,887	807,059	86,718	122,429	6,879	346,142	26,335	588,503	218,556	—5,324	42,897	170,335	82,449
Midland Valley	373[24]	70,802	31,276	109,442	22,566	19,835	2,858	35,200	6,550	87,009	22,433	38	5,785	16,686	—1,537
Minneapolis & St. Louis	1,585	444,973	106,151	585,729	72,940	94,010	18,007	304,224	19,581	508,762	76,967	—29	25,099	51,839	—46,894
Missouri Pacific	3,915[25]	1,348,296	309,123	1,931,669	250,355	219,040	50,658	894,304	66,159	1,480,516	351,153	—3,810	102,994	244,349	372,577
Mobile & Ohio	1,114	746,063	103,114	908,593	101,950	164,167	37,980	350,124	32,907	687,128	221,465	—712	26,406	194,347	22,027
Monongahela	65	117,010	1,971	120,636	10,271	7,472	361	24,930	1,880	44,914	75,722	.....	2,000	73,722	24,621
New Orleans & North Eastern	196	246,158	56,757	328,582	29,837	65,484	9,305	127,437	12,433	244,496	84,086	—2,007	8,300	73,779	—380
New Orleans, Mobile & Chicago	404	131,887	25,898	166,790	31,931	17,822	3,079	52,591	7,441	112,864	53,926	—138	4,073	49,715	8,767
New York Central & Hudson River	3,597[26]	4,616,856	2,007,044	7,476,207	909,845	1,612,557	202,235	3,406,727	259,890	6,391,254	1,084,953	12,425	462,935	634,443	131,607
New York, New Haven & Hartford	2,091[27]	2,615,091	1,834,087	4,848,962	353,160	666,127	26,318	2,096,766	167,172	3,309,543	1,539,419	90,891	310,000	1,320,310	347,474
New York, Ontario & Western	566[28]	637,935	67,706	727,068	90,314	118,887	11,005	315,534	16,535	552,275	174,793	—1,477	17,916	155,400	70,010

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF FEBRUARY, 1912—(CONTINUED).

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance										
		Freight.	Passenger.	Total, inc. misc.	Way and structures.	Of equipment.	Traffic.	Transportation.	General.	Total.					
New York, Philadelphia & Norfolk	112	$200,328	$27,564	$244,152	$20,326	$45,478	$3,913	$106,457	$12,512	$188,686	$55,466	.....	$7,900	$47,566	$18,442
Norfolk Southern	608	181,305	50,933	251,182	30,099	32,791	5,194	89,207	12,087	169,378	81,804	—208	7,500	74,096	—5,922
Northern Central	473[29]	787,356	156,563	1,003,636	127,472	260,474	14,975	527,785	26,203	956,909	46,727	162	36,175	10,714	40,917
Northern Pacific	6,034[30]	3,071,025	896,052	4,252,928	396,611	528,247	87,734	1,672,409	75,188	2,760,189	1,492,739	—10,101	238,079	1,244,559	251,489
Oregon Short Line	1,762[31]	1,093,500	287,075	1,485,804	136,486	161,179	28,236	396,145	36,764	758,810	726,994	—2,833	57,000	667,161	271,490
Oregon-Washington R. R. & Nav. Co.	1,920[32]	771,746	314,019	1,188,629	145,476	147,902	49,965	465,690	48,485	857,518	331,111	4,064	88,088	247,087	103,677
Pennsylvania *Co.*	1,760[33]	2,947,330	593,720	3,936,097	611,127	807,961	74,348	1,675,406	90,706	3,259,548	676,549	—5,204	198,420	472,925	52,724
Pennsylvania *Railroad*	4,018[34]	9,952,079	2,383,658	13,171,738	1,468,694	2,824,809	184,583	5,294,570	332,531	10,105,187	3,066,551	—158,319	564,472	2,343,760	704,835
Pere Marquette	2,330[35]	745,421	216,874	1,048,236	160,911	222,538	34,193	653,428	36,612	1,107,682	—59,446	—19,687	56,394	—135,527	—65,222
Philadelphia, Baltimore & Washington	713	713,688	597,518	1,464,505	205,173	274,025	31,544	708,267	43,158	1,262,167	202,338	.....	49,268	153,070	17,055
Pittsburgh, Cincinnati, Chic. & St. Louis.	1,467	2,314,246	512,438	3,187,833	341,570	666,071	61,561	1,305,074	67,142	2,441,418	746,415	—1,273	120,053	625,089	242,878
Rutland	468	134,148	67,029	227,624	27,990	47,262	5,871	112,093	5,557	198,773	28,851	.....	11,772	17,079	19,314
St. Louis, Iron Mountain & Southern	3,314[36]	1,943,793	469,567	2,581,663	351,612	253,346	51,555	868,107	72,932	1,597,552	984,111	—4,746	106,945	872,420	248,040
St. Louis, San Francisco & Texas	244	68,536	19,803	93,982	17,576	14,554	2,150	51,218	5,161	90,659	3,323	.....	1,216	2,107	11,113
San Antonio & Aransas Pass	727	234,765	75,228	331,636	65,103	45,782	5,992	141,617	10,019	268,513	63,123	.....	11,000	52,123	27,998
Southern	7,089[37]	3,553,444	1,204,341	5,167,035	705,324	823,229	146,653	1,890,901	160,817	3,726,924	1,440,111	—3,669	204,376	1,232,066	63,549
Southern in Mississippi	281	72,750	24,512	102,697	23,973	8,735	2,363	40,579	4,399	80,049	22,648	.....	4,056	18,592	8,997
Syracuse, Binghamton & New York	80	49,550	25,814	86,072	3,026	8,468	2,619	43,207	2,276	59,596	26,476	.....	6,820	19,656	—9,562
Tennessee Central	294	76,148	24,876	109,202	20,748	16,704	6,058	56,499	7,256	107,265	1,937	.....	4,212	—2,275	—27,992
Union Pacific	3,537[38]	2,339,718	676,917	3,399,042	236,240	520,645	101,426	1,143,065	104,757	2,106,133	1,292,909	—10,334	159,950	1,122,625	39,812
Union R. R. of Baltimore	9	96,903	19,281	117,745	7,183	.....	1,108	5,684	3,128	17,103	100,642	.....	5,414	95,228	13,326
Union R. R. of Pennsylvania	31	.....	.....	232,448	26,156	76,999	100	129,230	2,689	235,174	—2,726	2,600	4,750	—4,876	—12,322
Vandalia	827	589,857	167,431	837,247	90,065	178,102	22,382	363,231	17,662	651,442	185,805	.....	28,010	157,795	53,580
Vicksburg, Shreveport & Pacific	171	81,341	32,865	126,466	22,209	21,467	3,297	38,719	4,713	90,405	36,061	38	6,300	29,799	12,903
Virginian	475[39]	365,830	15,523	392,448	49,015	74,674	5,007	113,365	7,897	249,958	142,490	4,446	17,600	129,336	67,348
West Jersey & Seashore	356[40]	136,283	189,382	348,039	69,013	69,019	9,586	200,189	13,183	360,990	—12,951	—4,005	29,902	—46,858	14,468
Western Maryland	543	482,850	49,688	553,290	35,765	67,361	10,064	241,258	13,745	368,193	185,097	.....	21,000	164,097	9,432
Yazoo & Mississippi Valley	1,372	537,571	181,962	782,505	95,892	112,530	15,725	375,730	25,824	625,701	156,804	—128	37,000	119,676	—182,171
SEVEN MONTHS OF FISCAL YEAR, 1912.															
Belt Ry. Co. of Chicago	21	.....	.....	$1,547,342	$97,559	$174,621	$4,255	$582,131	$40,631	$899,197	$648,145	.....	$51,309	$596,836	$30,717
Buffalo, Rochester & Pittsburgh	572	$4,780,753	$662,639	5,607,338	702,755	1,068,067	68,419	1,825,799	120,658	3,785,698	1,821,640	$1,506	119,000	1,704,146	—283,208
Chicago, Indianapolis & Louisville	616	2,502,568	1,002,129	3,857,745	525,890	537,475	124,682	1,384,142	102,830	2,675,019	1,182,726	.....	163,162	1,019,564	26,793
Central Vermont	411	1,546,743	693,361	2,431,265	283,528	285,755	55,095	1,127,314	64,661	1,916,353	514,912	3,820	84,500	434,232	—78,481
Kansas City, Mexico & Orient	809*	804,339	219,052	1,082,843	269,874	211,912	58,132	495,317	62,264	1,097,499	—14,656	.....	39,687	—54,343	—99,721
Spokane, Portland & Seattle	550†	1,671,190	1,049,311	2,906,277	290,621	264,975	49,334	737,292	77,551	1,419,773	1,486,504	10,112	260,404	1,236,214	104,597
Western Maryland	543	3,415,362	592,016	4,186,897	514,895	517,279	71,528	1,485,076	95,098	2,683,876	1,503,021	—393	147,000	1,355,628	—160,149
EIGHT MONTHS OF FISCAL YEAR, 1912.															
Atchison, Topeka & Santa Fe	8,201[1]	$38,937,981	$15,400,720	$58,992,971	$9,431,004	$9,171,541	$1,305,299	$17,629,292	$1,271,937	$38,809,073	$20,183,898	.....	$2,378,141	$17,805,757	—$2,022,595
Atlantic & St. Lawrence	167	693,342	211,030	994,969	250,239	171,373	35,397	488,899	27,752	972,660	21,309	.....	53,269	—31,960	26,915
Atlantic Coast Line	4,527[2]	14,444,249	5,572,255	21,578,125	2,838,793	3,178,189	362,068	7,461,868	574,608	14,415,526	7,162,599	.....	856,000	6,306,599	—64,066
Baltimore & Ohio Chicago Terminal	77	.....	18,623	1,024,010	202,800	140,249	7,109	476,305	40,236	866,699	157,311	$6,677	143,651	18,337	7,981
Bangor & Aroostook	627	1,699,404	434,739	2,255,479	369,008	256,640	31,869	701,108	91,266	1,449,891	805,588	.....	76,250	729,338	45,229
Bessemer & Lake Erie	203[3]	5,078,254	240,940	5,397,390	539,459	1,054,050	66,509	1,384,148	82,533	3,126,699	2,270,691	.....	85,474	2,185,217	509,061
Boston & Maine	2,244[4]	17,627,292	10,805,790	30,676,388	4,162,906	4,192,631	306,440	14,101,241	677,008	23,440,226	7,236,162	136,131	1,395,511	5,976,782	221,769
Buffalo, Rochester & Pittsburgh	572	5,465,919	727,618	6,373,543	784,091	1,215,015	77,720	2,096,280	136,569	4,309,675	2,063,868	1,458	136,000	1,929,326	—269,006
Canadian Pacific Lines in Maine	233	557,207	197,348	810,538	171,567	133,621	43,795	374,108	34,871	757,962	52,576	.....	56,000	—3,424	41,590
Central New England	276	1,943,070	230,022	2,285,485	349,560	175,713	10,239	614,973	22,689	1,173,174	1,112,311	—4,538	72,000	1,035,773	288,649
Charleston & Western Carolina	341	988,560	253,693	1,308,898	239,104	187,952	24,015	485,465	36,254	972,790	336,108	.....	40,000	296,108	—92,189
Chicago & Eastern Illinois	1,275	7,839,693	1,999,373	10,598,159	1,150,014	2,051,275	237,441	3,902,955	328,625	7,670,310	2,927,849	—13,696	285,593	2,628,560	—402,746
Chicago & Northwestern	7,928[5]	31,029,481	13,558,140	49,511,053	6,369,419	6,730,979	929,659	20,820,179	992,426	35,842,662	13,668,391	—29,878	2,200,000	11,438,513	—1,429,757
Chicago, Milwaukee & Puget Sound	2,059[6]	8,377,234	1,741,185	10,498,294	764,612	1,190,450	391,568	3,928,056	168,112	6,442,798	4,055,496	124,919	750,104	3,430,311	—387,708
Chicago, Milwaukee & St. Paul	7,511[7]	28,644,005	9,519,615	42,504,222	5,777,286	6,362,215	852,955	17,940,571	774,721	31,707,748	10,796,474	—31,167	1,942,448	8,822,859	—891,584
Chicago, Peoria & St. Louis	255	856,432	236,588	1,153,257	151,019	230,776	58,539	514,761	48,071	1,003,166	150,091	.....	34,400	115,691	35,473
Chicago, Rock Island & Pacific	7,552[8]	26,682,752	12,499,133	41,877,452	6,010,698	5,681,005	1,257,425	16,953,380	1,151,313	31,053,821	10,823,631	—126,677	1,766,184	8,930,770	—1,803,393
Chicago, St. Paul, Minneapolis & Omaha	1,744	6,380,342	3,178,178	10,290,896	1,219,594	1,229,045	216,758	4,264,937	244,984	7,175,318	3,115,578	2,671	524,943	2,593,306	—964,654
Cincinnati, Hamilton & Dayton	1,014	4,890,497	1,136,329	6,753,502	690,902	1,128,972	153,902	2,834,750	152,430	4,960,956	1,792,546	.....	293,512	1,499,034	298,870
Cumberland Valley	162	1,411,728	452,250	1,958,145	341,314	254,097	36,866	647,070	61,441	1,340,788	617,357	3,446	47,714	573,089	—204,724
Delaware & Hudson Co.—R. R. Dept.	852[9]	12,071,638	2,115,346	14,635,475	1,021,096	2,006,682	179,032	4,970,560	365,846	8,543,216	6,092,259	—14,974	398,859	5,678,426	565,937
Delaware, Lackawanna & Western	958[10]	18,029,269	5,182,717	24,760,965	2,769,844	3,948,481	532,195	7,451,108	521,359	15,222,987	9,537,978	258,512	1,338,880	8,457,610	—347,583
Denver, Northwestern & Pacific	215	591,627	225,999	855,189	112,179	132,833	18,961	302,253	27,029	593,255	261,934	.....	26,000	235,934	6,880
Detroit & Mackinac	358[11]	514,581	229,925	794,742	139,999	141,099	19,366	264,635	25,297	590,396	204,346	1,488	68,460	137,374	—56,885
Detroit, Toledo & Ironton	441	1,026,240	115,617	1,228,130	238,494	151,714	22,045	591,065	43,439	1,046,757	181,373	—23	48,584	132,766	108,445

(TO BE COMPLETED NEXT WEEK.)

Operated in corresponding period last year—* 740; † 432; [1] 7,536; [2] 4,494; [3] 204; [4] 2,243; [5] 7,744; [6] 2,005; [7] 7,512; [8] 7,549; [9] 819; [10] 930; [11] 360; [12] 191; [13] 832; [14] 583; [15] 587; [16] 1,518; [17] 4,576; [18] 1,663; [19] 1,432; [20] 395; [21] 4,591; [22] 1,803; [23] 1,180 [24] 324; [25] 3,920; [26] 3,591; [27] 2,041; [28] 546; [29] 469; [30] 6,028; [31] 1,646; [32] 1,636; [33] 1,416; [34] 3,977; [35] 2,334; [36] 3,316; [37] 7,039; [38] 3,473; [39] 474; [40] 353. — Indicates Deficits, Losses and Decreases.

Complaint Dismissed.

Crescent Coal & Mining Co. v. Baltimore & Ohio. Opinion by the commission:

Again the commission holds that demurrage accruing on account of railways' embargo against connecting line at destination is not unreasonable. (23 I. C. C., 75.)

George E. Pierce v. Pittsburgh & Lake Erie et al. Opinion by the commission:

The rates charged on certain carload shipments of coal from Braznell, Pa., to Erie street, Buffalo, N. Y., are not found unreasonable. (23 I. C. C., 82.)

National Manufacturing Co. v. Atchison, Topeka & Santa Fe et al. Opinion by Commissioner Harlan:

The fact that the complainant, whose factory is at St. Joseph, Mo., cannot market glucose syrup on the Pacific coast is due not to unreasonable rates from St. Joseph but to the high cost of raw materials. (23 I. C. C., 79.)

Rates on Cotton Seed Reduced.

Memphis Freight Bureau et al. v. St. Louis, Iron Mountain & Southern and St. Louis & San Francisco. Opinion by Commissioner Clark:

The rates on cotton seed to Memphis, Tenn., from Missouri, Arkansas, Oklahoma and Louisiana are claimed to be unreasonable in themselves and unjustly discriminatory in favor of St. Louis and various other mill points, and the complainants ask that rates on cotton seed be fixed on a mileage basis corresponding to the "Arkansas court tariff." The Arkansas court tariff was the result of a compromise between the state commission and the railways which, after having been tried out for a year, is now being fought in the federal courts by the railways. The discrimination against Memphis results from the fact that rates to local points are the Arkansas Court rates, and rates to Memphis are the voluntarily established interstate rates. The rates to St. Louis are admitted to be "very low" and "unreasonably and even absolutely low." Prior to the establishment of the Arkansas railway commission in 1900 defendants' rates were lower to Memphis than are the present rates. The movement of seed is largely controlled by the distribution of ownership of mills, and is not affected by slight differences in freight rates. The commission, however, finds that there is not unfair discrimination against Memphis, and, besides fixing a schedule of rates for the St. L. I. M. & S., and for the Frisco, orders that in future rates from certain Oklahoma points to Memphis be 20 per cent. less than the rates from the same points to St. Louis. (22 I. C. C., 548.)

No Discrimination in Sugar Rates.

In re absorptions provided for in tariffs of the Louisiana Railway & Navigation Co. for the movement of sugar. Opinion by Commissioner Clark:

It is claimed that the defendant is transporting sugar at less than cost from New Orleans, La., to Grammercy. The railway commission of Louisiana, intervening, joined with the defendant in claiming that the rate of this railway was not subject to federal regulation. The I. C. C., however, finds that this rate is subject to federal regulation because it is a local import tariff and because the act to regulate commerce gives the commission jurisdiction over commodities shipped from a foreign country to any place in the United States and carried to such place from a port of entry in the United States or an adjacent foreign country. The commission does not find that the charge on this rail haul is less than the service costs. (22 I. C. C., 558.)

No Discrimination Against Baltimore.

Baltimore Chamber of Commerce v. Baltimore & Ohio et al. Opinion by Commissioner Lane:

After investigation of the rates on grain from producing points in Indiana and Illinois to Baltimore, the commission finds that there is no unreasonable discrimination against Baltimore, and therefore dismisses the complaint. Although in recent years Baltimore has suffered as a grain market, it has not been due to the discriminations against it by the defendant, and it is not in the power of the commission to equalize economic conditions or to require the railways to attempt to do so. It is pointed out that the shippers from the producing territory are not complaining and are apparently satisfied with the grain markets that they get. (22 I. C. C., 596.)

Wood Pulp Rates Reduced.

Wisconsin Pulp Wood Co. v. Great Northern. Opinion by the commission:

The rates on lumber to Superior, Wis., are lower than the rates on wood pulp, and the commission orders the wood pulp rate reduced to be no higher than the rate on lumber. (22 I. C. C., 594.)

Minimum Weight on Potatoes Unreasonable.

In re suspension of advances in rates on potatoes. Opinion by Commissioner McChord:

It is plainly shown that Texas and Louisiana potatoes cannot be safely loaded to more than 24,000 lb. to 25,000 lb. The proposed increase in the minimum carload weight from 24,000 lb. to 30,000 lb. is not justified by the railways. (23 I. C. C., 63.)

Rehearing Denied.

Whiteland Canning Co. v. Pittsburgh, Cincinnati, Chicago & St. Louis et al. Opinion by Chairman Prouty:

While there may be cases where railways may properly ask for a reconsideration of some conclusions reached by the commission by reason of the fact that they are indirectly interested in the results and had no notice of the pendency of the proceedings in which a certain order was made, the commission thinks that in the great majority of instances, and in this instance, that is no valid reason for granting a rehearing. (23 I. C. C., 92.)

Hearing on Weighing Practices.

The hearing begun by Chairman C. A. Prouty of the Interstate Commerce Commission at Chicago on March 25 on the subject of alleged irregularities and discrepancies in the weighing of carload freight was continued throughout the week before Examiner Ward Prouty, attorney J. T. Marchand conducting the examination for the commission. A large number of witnesses testified both for the shippers and for the railways regarding discrepancies which had been found prevalent under present weighing practices, and methods of improving the situation. It was announced that the commission intends to make the investigation a very thorough one, and it is proposed to hold hearings at Grand Rapids, Mich., Minneapolis, Minn., and at least one hearing in the East, the South, and probably later on the Pacific coast.

Following the testimony of C. F. Staples, chairman of the Minnesota railway commission, which was reported last week, O. F. Bell, traffic manager for the Crane Company, Chicago, and chairman of the committee appointed by the National Industrial Traffic League, to investigate the subject of weighing, testified to the results of a series of investigations he had made at the company's Chicago plant. During the month of January, 1911, out of 384 cars, on 132 a variation of 500 lb. from the stenciled weight was found; 97 cars weighed 141,350 lb. over the stenciled weight and 35 cars weighed 37,690 lb. under the stenciled weight. During June out of 317 cars, 95 showed variations of 500 lb. or over, 21 weighed 47,300 lb. over the stenciled weight and 74 cars weighed 83,420 lb. under the stenciled weight. Mr. Bell explained that the preponderance of overweight cars in January was doubtless due to the effect of snow and ice on the cars and that variations in weights were frequently caused by large amounts of debris and other foreign substances in the cars. He cited the case in which 760 lb. of sand and dirt were found in a car after it had been loaded with pig iron. His company was a party to a weight agreement with the Western Railway Weighing Association and Inspection Bureau, by which the railways accepted the shippers' weights, and his company's weights were frequently checked by inspectors of the bureau. He had hardly found one car out of ten whose weight agreed with that stenciled on the car. Out of 44 empty cars set for loading at the plant during July and August, 1911, eight weighed 11,080 lb. over the stenciled weights and 36 37,660 lb. less. He cited the case of one car which in the course of tracing a claim was weighed seven different times on different scales, and weights

were found varying from 39,400 lb. to 55,300 lb. The marked weight of the car was 40,000 lb., and his company was asked to pay freight rates on approximately 14,000 lb. of manganese iron which had not been loaded. Mr. Bell thought that cars should be restenciled as soon as a discrepancy amounting to 500 lb. is found to exist.

A. S. Dodge, superintendent of the Western Railway Weighing Association and Inspection Bureau, testified at considerable length to the methods of the association in weighing and inspecting scales by means of test cars owned by individual railways. He said that the scales under the jurisdiction of the association at 738 weighing points are inspected from three to six times a year. There are 142 inspection points under his jurisdiction. He had made a compilation of empty cars weighed by association weighmasters during five months of 1911, showing that 5,283 cars weighed 5,301,643 lb. less than the stenciled weight, an average of 1,003 lb., and that 3,648 cars weighed 3,393,486 lb. more than the stenciled weight, an average of 930 lb. Based on these figures, 59 per cent. of the cars were found to be lighter than the stenciled weight, or to the advantage of the shipper, and 41 per cent. heavier than the stenciled weight, or to the advantage of the railway company. The association has weight agreements with a large number of reputable firms, by which the shippers' weights are accepted. He said that every effort is made to secure adequate inspection by weights and scales, and that many of the weighmasters have been in the employ of the association all their lives. At smaller points the weighing is done by employees of the railways who have other duties to perform. He stated the association has no authority to change the stenciled weights, that within the past few weeks it has adopted the practice of tacking on cars a card showing the correct weight where it had been found to vary 500 lb. from the stenciled weight, and the owner of the car is promptly notified. He thought it was important that some means be adopted to expedite the making of corrections in the stenciled figures, and in reply to a question said he was planning to discuss with the executive committee a proposal that corrected weights ascertained by the bureau be made effective at once.

During the year 1911 the association had weighed a total of 5,709,763 cars, including 1,371,911 weighed loaded and empty, and 4,337,852, using the stenciled tare. Of 213,464 cars check-weighed, only 17,830 cars, or 8.3 per cent., varied 1,000 lb. from the first scale weight. No correction is made in the billing for variations of less than 1,000 lb. In addition, 1,713,029 cars had been handled in 1911 under special weight agreements. Of these 2,737 had been check-weighed and only 284, or 10.4 per cent., had showed a variation of over 1,000 lb. Check weights are taken while the car is standing on the scales and cut from the train. Live stock and some other commodities are usually weighed while cars are in motion. Weighmasters figure on weighing three cars a minute.

He desired to state that of 16,125 lumber claims referred to the bureau in 1911, it had recommended that 62 per cent. be declined, and authorized that 38 per cent. be paid. Six per cent. of the latter were based on estimated weights, 10 per cent. on the lowest scale weights, and 22 per cent. on various conditions. Of 26,088 miscellaneous claims, the bureau had recommended that 48 per cent. be declined and that 52 per cent. be paid. Of these, 2 per cent. were based on estimated weights, 7 per cent. on the lowest scale weights and 43 per cent. on miscellaneous conditions. In 1906 the bureau had received 61,408 lumber claims. That the number had been reduced to 25 per cent. in 1911 he thought indicated a marked improvement in the scale weights. In 1911 the bureau inspectors had reported to members 101,546 less than carload shipments which were found to weigh more than the weights at which they had been billed, either on account of erroneous weights made by the railways or furnished by the shippers. The discovery resulted in an addition of $203,000 to the freight earnings. The bureau will make a special weight agreement with any reputable firm whose records can be checked by the bureau inspectors, except on certain commodities, such as coal and lumber, which, he said, could not be reliably estimated. One hundred and twenty-four roads, operating 105,000 miles, are members of the association. During 1911 its maintenance had cost the roads $765,000, and its inspection service had increased their revenues by approximately $2,500,000.

Ernest L. Ewing, traffic manager of the Lumbermen's Association of Grand Rapids, complained that the railway track scales are inaccurate and not properly maintained, and that foreign substances left in the cars added to the weights on which shippers are required to pay freight.

J. J, Badenoch, a hay and grain dealer, was particularly vigorous in his criticisms of the team track weights of the railways at Chicago. Inaccurate weigths, he said, cost the grain men of Chicago at least $300,000 a year, and he thought that the weights of the Western Railway Weighing Association and Inspection Bureau were entirely unsatisfactory.

Elevator grain at Chicago is weighed in hopper scales under the supervision of H. A. Foss, weighmaster of the Board of Trade. He testified at considerable length regarding conditions affecting the weight of grain. He said that far more accurate weights could be obtained by the hopper scales than by track scales, but that very wide variations were observed in weights which had been obtained under the best of conditions due to natural shrinkage, etc.

F. C. Maegly, assistant general freight agent, Atchison, Topeka & Santa Fe, testified regarding weighing and inspection practices on his road, saying that it has instructions in effect that all cars be weighed standing and cut from the train except live stock at Kansas City.

The 102 track scales in service on the Santa Fe are tested by the standard test car every three to five months, and the company maintains a very elaborate organization for the purpose of keeping its weights accurate. Mr. Maegly exhibited a holder which is placed on cars, into which are inserted small cards showing the tare weight, so that the marked tare can be readily changed, thereby saving approximately a day's time which is required to have the stencil changed.

Paul P. Rainer, chief inspector of the Joint Rate Inspection Bureau, explained the operations of the bureau in detail. Chairman Prouty asked him if there was any reason why scale inspectors and weighmasters might not be appointed by the government and paid by the railways. Mr. Rainer was afraid of the effect of political influence.

Mr. Church, manager of the scale department of Fairbanks, Morse & Company, explained in great detail the mechanical features of scales, saying that there is a risk in weighing cars over track scales when in motion or when coupled in trains. He said scales should be examined carefully every other day, or at least once a week, to guard against scale binding, water in the pit and other factors that might render them inaccurate, and that a maximum variance of 50 lb. can be maintained by close supervision. He admitted that he had had no experience in the actual weighing of cars under service conditions. In cross examination attorneys for the railways brought out many factors other than the inaccuracy of weighing methods or scales which might cause differences in weights taken at different times, such as the natural shrinkage of commodities, the effect of weather conditions on both cars and contents, the loading of coal in such a way that much of it falls off in transit, and the pilfering of coal in transit.

STATE COMMISSIONS.

George V. S. Williams, of Brooklyn, has been appointed by the governor of New York a member of the Public Service Commission for the First district (New York City), succeeding William McCarroll. Mr. Williams is a lawyer, and has been active in democratic politics in Kings county. By the appointment of the same governor Mr. Williams has for some months past been counsel of the State Conservation Commission. He is 43 years old.

The New York Public Service Commission, Second district (up-state), has begun an investigation of the methods of handling and delivering hay at New York, Weehawken and Brooklyn. Complaints have been made as to the long continued embargoes on shipments of hay, C. L., to New York. These complaints say that there was an embargo for 363 days out of 472 days, from September 16, 1910, to December 31, 1911, against hay to be delivered at the N. Y. C. Thirty-third street terminal; and there was an embargo against the delivery of hay at the Sixty-sixth street terminal of 350 days out of the same 472 days. The investigation so far shows that the probable cause of the congestion

is that hay which is received on commission by merchants is not removed from the cars. A further hearing is to be held on April 26.

The application of the New York Central & Hudson River to acquire a majority of the stock of the New York, Ontario & Western has been denied by the New York Public Service Commission, Second District. The commission says that no transfer of a bare majority interest from the New York, New Haven & Hartford to the N. Y. C. should be permitted without reasonably guarding the minority from possible oppression by the majority interest. No means are apparent by which this can be done except by imposing as a condition of the authorization that the Central shall take over the minority stock on the same terms per share as it pays the New Haven. If the minority stockholders availed themselves of this privilege it would make a purchase price to be paid by the Central of about $26,000,000 and involve an annual fixed charge for interest of about $1,150,000. The commission is unwilling to impose this burden upon the N. Y. C. and has had its attention called to no advantage which in its judgment would compensate for the disadvantages involved in such an investment. The continued successful development of the capabilities of the Ontario & Western requires close attention to and careful study of traffic, operating and financial conditions. It is the clear judgment of the commission that the energies of the New York Central and its credit and resources of every nature should properly be devoted to the public duties and burdens with which it is now charged and to the urgently demanded solution of the numerous and complicated problems pressing upon it in connection with the proper growth and development of its existing properties. The New York, New Haven & Hartford owns two shares of the preferred stock and 291,600 shares of the common stock of the Ontario & Western. The New York Central at present owns only 10 shares of the preferred stock. The New York Central asked for authorization to purchase all of the capital stock owned by the New Haven, agreeing to pay the sum of $13,108,397.62 by issuing its 50 year debenture bonds for that amount bearing $583,332 interest payable annually. The price agreed to be paid is 44.94 per cent. of the par value of the stock involved. The commission calls attention to the fact that the New Haven owns a bare majority of the total stock issued, namely $29,164,000 as against a minority interest of $28,953,983, the difference between the amounts of the majority and minority interests being only $210,017. For several years the Ontario & Western has been paying 2 per cent. dividends on its common stock and 6 per cent. on preferred stock, which amounts to the precise sum which it is proposed to pay on debenture bonds to be issued in payment for the stock. The commission calls attention to the fact that as a necessary result the Central assumes an annual fixed charge of $583,332 which can be met by returns from its investment, provided the Ontario & Western continue to pay a 2 per cent. dividend upon its common stock.

COURT NEWS.

Mrs. Jean McKell representing the estate of Thomas McKell, a late banker of Chillicothe, Ohio, was awarded a judgment of $300,000 against the Chesapeake & Ohio, by a jury in the United States District court at Cincinnati on March 27. The suit has been pending in the Ohio and federal courts for about ten years and grows out of charges that the railway abrogated a contract to take coal from McKell's mines in West Virginia in return for the granting of right of way through the coal lands. The amount of damages asked was $3,750,000.

The government has entered in the Federal Court at New York a civil suit for dissolution of a number of steamship companies engaged in traffic between New York and the far East through the Suez canal. The companies concerned are charged with pooling freights and rebating to concerns who ship only by their lines, in violation of the Sherman anti-trust law. The companies named are the American-Asiatic; Anglo-American Oil; Hamburg American Line; China & Japan Steamship Company, and the Lancashire Shipping Company; Howard Houlder & Partners, Ltd.; Shewan Tomes & Co.; Andrew Weir & Co.; Houlder, Middleton & Company; Dodwell & Co., Ltd.; Bucknell Steamship Line; Isthmian Steamship Lines, and numerous individuals. Government presents copies of agreements signed by the defendant companies in London, April 13, 1905. This agreement, it is charged, provided for methods as to the control of shipping, and the profits were divided equally among the lines concerned. Rebates were given to shippers for their loyalty, or, in other words, for patronizing the companies in the pool. When companies outside the pool put on steamships in competition for the traffic, measures were to be taken to put them out of business, the expense for such an undertaking being paid from the pool funds.

Posting a Tariff Is Not Part of Publishing.

The decision of the Supreme Court of the United States, prepared by Justice Van Devanter, reversing the judgment of a lower court which had sustained demurrers presented by H. C. and M. F. Miller, who had been indicted for securing unlawful freight rates—sustaining them because tariffs showing the legal rates had not been properly posted—holds, in effect, that the posting is not a part of publishing; a tariff may be published even though it be not posted. The decision was on the appeal of two cases from the circuit court for the southern district of Georgia, and was handed down February 26.

The law, in various clauses, speaks of tariffs as being "published and filed." Section 6 requires tariffs to be printed and kept open for public inspection . . . and copies for the use of the public shall be kept posted in two public and conspicuous places, etc., in such form that they shall be accessible to the public and can be conveniently inspected. It was contended that a tariff is not published in the sense in which the act uses that term unless printed copies are "kept posted in two public and conspicuous places in every depot," etc., and it was this contention that prevailed in the Circuit Court. But, says Justice Van Devanter, this view is not sound. Publication and posting in the sense of the act are essentially distinct. This is the import of the provision that the requirements relating to "publishing, posting and filing" may be modified by the commission in special circumstances, for if publishing included posting mention of the latter was unnecessary. And from all the provisions on the subject it is evident that the publication intended consists in promulgating and distributing the tariff in printed form preparatory to putting it into effect, while the posting is a continuing act enjoined upon the carrier, while the tariff remains operative, as a means of affording special facilities to the public for ascertaining the rates in force thereunder. In other words, publication is a step establishing rates, while posting is a duty arising out of the fact that they have been established. Obviously, therefore, posting is not a condition to making a tariff legally operative. Neither is it a condition to the continued existence of a tariff once legally established. If it were, the inadvertant or mischievous destruction or removal of one of the posted copies from a depot would disestablish or suspend the rates, a result which evidently is not intended by the act, for it provides that rates once lawfully established shall not be changed otherwise than in the mode prescribed.

Whether, by failure to comply with the posting clause, a carrier becomes subject to a penalty is apart from the present case and need not now be considered.

The Commerce Court Overruled.

The Supreme Court of the United States decided, on Monday last, that the Interstate Commission has power to require water lines to report to it regarding intrastate as well as interstate business. This was the first case from the Commerce Court to be considered by the Supreme Court, and the Commerce Court is reversed. Justices Lurton and Lamar filed dissenting opinions. The government, in arguing this case, declared that the Commerce Court's decision would mean that railways also would be relieved from the duty of reporting intrastate business, and the commission's whole system of gathering reports relative to commerce would thus be made worthless.

The orders in question required reports regarding operating expenses and operating revenues of water lines, and affected principally lines on the Great Lakes. The Commerce Court held that the commission had power to require reports only regarding traffic carried under joint arrangement with railway carriers, but not as to purely intrastate and port-to-port business.

Justice Day, who wrote the opinion, said a mistake had been made by the Commerce Court in confusing knowledge of intrastate commerce with regulation of it. He said it was within the power of the commission to require full information concerning the whole business, intrastate as well as interstate.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

D'Arcy Tate, solicitor of the Grand Trunk Pacific, with office at Winnipeg, Man., has resigned.

R. G. Lucas has been appointed assistant general counsel of the Denver & Rio Grande, with office at Denver, Colo., succeeding A. C. Campbell, resigned to accept service elsewhere.

T. S. Walton, assistant freight claim agent of the Missouri Pacific-Iron Mountain at St. Louis, Mo., has been appointed freight claim agent, with office at St. Louis, succeeding J. S. Tustin, deceased.

C. D. Sipe has been appointed auditor of freight accounts of the Chicago & Alton and the Toledo, St. Louis & Western, with office at Chicago, succeeding W. R. Mozier, resigned to accept service with another company.

W. E. Hemingway, assistant to the vice-president and general solicitor for Arkansas and Oklahoma of the Missouri Pacific-Iron Mountain system, with office at Little Rock, Ark., has resigned to devote his time to his private practice.

A. H. Smith, vice-president and general manager of the New York Central & Hudson River, has been elected vice-president of the New York Central Lines west of Buffalo in charge of operation, maintenance and construction, with office at New York. J. J. Bernet, assistant to vice-president of the lines west at Chicago, has been appointed assistant vice-president, with office at Chicago. A. T. Hardin, assistant general manager of the New York Central & Hudson River, at New York, has been appointed assistant vice-president, with office at New York, with jurisdiction over the lines east of Buffalo.

Charles E. Schaff, whose election as president of the Missouri, Kansas & Texas, with office at St. Louis, Mo., has been announced in these columns, was born February 4, 1856, in Licking county, Ohio. He began railway work January 4, 1871, as a brakeman, and until July, 1893, he was consecutively fireman, train baggageman, conductor, yardmaster, trainmaster and general superintendent with the Pittsburgh, Cincinnati & St. Louis, now the P. C. C. & St. L.; the Columbus, Hocking Valley & Toledo, now the Hocking Valley; the New York, Pennsylvania & Ohio, now the Erie; the Cleveland, Cincinnati, Chicago & St. Louis and the Peoria & Pekin Union. He was assistant to the president of the Cleveland, Cincinnati, Chicago & St. Louis from July, 1893, to September, 1894, in the latter month became assistant general manager, and in November, 1895, was promoted to general manager. In June, 1906, Mr. Schaff was elected vice-president in full charge of maintenance and operation of the New York Central Lines west of Buffalo, with office at Chicago, which position he has just resigned to become president of the Missouri, Kansas & Texas.

Operating Officers.

D. F. Bucher, superintendent of the Mexico North-Western, with office at Madera, Chihuahua, Mexico, has resigned, effective March 31.

J. A. Hillis, trainmaster of the Texas & Pacific, with headquarters at Fort Worth, Tex,, has had his office removed to Baird, Tex.

P. E. Crowley, assistant general manager of the New York Central & Hudson River, with office at Albany, N. Y., has been appointed general manager of the New York Central & Hudson River Railroad.

C. O. Johnston has been appointed superintendent of dining service of the Missouri, Kansas & Texas, with office at St. Louis, Mo., succeeding T. A. Dempsey, resigned to accept service with another company.

H. T. Malcolmson, chief clerk to the general manager of the Toronto, Hamilton & Buffalo, has been appointed car accountant, with office at Hamilton, Ont., succeeding G. W. Wilson, resigned to go into other business.

W. W. Eggleston, chief train despatcher of the Baltimore & Ohio at Baltimore, and P. J. Judge, chief train despatcher at Grafton, W. Va., have been appointed supervisors of transportation, a new position, reporting to the inspector of transportation.

A. E. Hutchinson, trainmaster of the Gulf, Colorado & Santa Fe at Beaumont, Tex., has been appointed trainmaster of the Dallas terminals at Dallas, Tex. As has been announced in these columns. F. H. Christian has been appointed trainmaster at Beaumont, succeeding Mr. Hutchinson.

P. L. McManus, inspector of transportation of the Chicago, Indianapolis & Louisville at Chicago, has been appointed superintendent, with office at LaFayette, Ind., succeeding P. G. Walton, retired, and W. J. Murphy has been appointed trainmaster, with office at LaFayette, succeeding C. T. McHugh, retired.

F. M. Mitchell, formerly trainmaster of the Baltimore & Ohio Southwestern at Seymour, Ind., and recently promoted to assistant superintendent at Cincinnati, Ohio, has been appointed superintendent of the Illinois division, with office at Flora, Ill., succeeding F. M. Curry, resigned. Effective April 1.

C. L. Vaughn, superintendent of transportation and purchasing agent of the Louisiana Railway & Navigation Company, having resigned, the office of superintendent of transportation has been abolished, and W. H. Coppage, trainmaster at Shreveport, La., has been appointed superintendent, with office at Shreveport, in charge of the Eastern and Western divisions. E. W. Buchanan has been appointed car accountant, with office at Shreveport, and H. L. Graham, assistant trainmaster at Shreveport, succeeds Mr. Coppage.

F. F. Busteed, general superintendent of the British Columbia division of the Canadian Pacific at Vancouver, B. C., was appointed general superintendent of the Manitoba division, with office at Winnipeg, Man., on March 25, but on April 1 he was transferred to the engineering department, with headquarters at Kamloops, B. C., as noted under Engineering & Rolling Stock Officers. D'Alton C. Coleman, formerly acting general superintendent of the Manitoba division at Winnipeg, has been appointed general superintendent of the Manitoba division, succeeding Mr. Busteed.

Xerxes H. Cornell, inspector of transportation of the Chicago & Alton and the Toledo, St. Louis & Western, at Chicago, has been appointed superintendent of transportation, with office at Chicago, a new position. In 1900, Mr. Cornell left the service of the Chicago, Indiana & Southern to go to the Grand Trunk, as chief despatcher. Later, he was made trainmaster at Durand, Mich., and in 1904 he was appointed master of transportation for the same company, with office at Durand. In December, 1910, he went to the Chicago & Alton and the Toledo, St. Louis & Western as inspector of transportation, with office at Chicago, which position he has held up to the time of his recent appointment as superintendent of transportation.

X. H. Cornell.

Samuel George Strickland, who has been appointed assistant general manager of the Chicago & North Western lines east of the Missouri river, with office at Chicago, was born August 15, 1859. He received his education at the collegiate institute and grammar schools at Port Hope and Peterboro, Ont., and began railway work in 1877 as a telegraph operator on the Canadian Pacific. The following year he went to the St. Paul, Minneapolis & Manitoba, now the Great Northern, where he was operator and clerk for two years. He then went with the Chicago, St. Paul, Minneapolis & Omaha as a telegraph operator, and was

successively promoted to agent, general agent, chief clerk to general superintendent, superintendent of terminals, trainmaster, superintendent and general superintendent. In 1908 he was appointed assistant general superintendent of the Chicago & North Western, and in the latter part of 1910 was promoted to general superintendent of the same road, from which office he is now promoted to assistant general manager.

C. L. Vaughn, whose appointment as superintendent of car service of the Kansas City Southern, with office at Kansas City, Mo., has been announced in these columns, was born in December, 1870, and began railway work with the Chicago, Burlington & Quincy as operator at Galena, Ill., in August 1887. In October, 1890, he went with the Great Northern as operator at Moorhead, Minn., and he remained with that road until July, 1901, having been agent and yardmaster at various points, traveling auditor, and in the freight receipts division accounting department. He then resigned to go with the Algoma Central Railway at Sault Ste. Marie, Ont., as inspector of transportation. He was subsequently despatcher, car accountant and trainmaster of the latter road, and in December, 1906, became general traveling car accountant of the Rock Island Lines, with office at Chicago. In October of the following year he went with the Louisiana Railway & Navigation Company as superintendent of transportation and purchasing agent, which office he resigned to accept his present position with the Kansas City Southern.

Walter J. Towne, who has been appointed general superintendent of the Chicago & North Western lines east of the Missouri river, except the Minnesota and Dakota divisions, with office at Chicago, was born in November, 1868, at Leavenworth, Kan., and graduated from Rensselaer Polytechnic Institute in 1895. He began railway work in the engineering department of the Atchison, Topeka & Santa Fe in 1886, and until 1892 he was consecutively axeman, tapeman, rodman and assistant engineer. From July, 1895, to January, 1896, he was assistant engineer in the office of the city engineer of Syracuse, N. Y., and entered the service of the state of New York in the latter month, as assistant engineer on the Erie canal improvement. He went with the Chicago & North Western in February, 1899, as assistant engineer on construction at Boone, Iowa, and has been with that road ever since. For a year and a half from January, 1900, he was assistant engineer on general maintenance work at Kaukauna, Wis.; was then transferred to Escanaba, Mich., where he remained for a year, and from June, 1902 to March, 1906, he was division engineer, first at Baraboo, Wis., then at Chicago, and later at Escanaba, Mich. He was appointed engineer of permanent work in the office of the chief engineer at Chicago in March, 1906, and four months later was made engineer of maintenance of way, with office at Chicago, from which position he has just been promoted to general superintendent.

W. J. Towne.

Samuel G. Strickland, general superintendent of the Chicago & North Western at Chicago, has been appointed assistant general manager of the lines east of the Missouri river, with office at Chicago, succeeding William E. Morse, resigned on account of ill health; and Walter J. Towne, engineer of maintenance of the lines east of the Missouri river at Chicago, has been appointed general superintendent of the lines east of the Missouri river, except the Minnesota and Dakota divisions, with office at Chicago, succeeding Mr. Strickland. George B. Vilas, superintendent of the Madison division, has been appointed assistant general superintendent of the lines east of the Missouri river, except the Minnesota and Dakota divisions, with office at Chicago, and E. E. Nash, superintendent of the Minnesota division, succeeds Mr. Vilas, with office at Baraboo, Wis. W. B. Linsley, superintendent of the Peninsula division at Escanaba, Mich., has been appointed resident superintendent of that division, with office at Escanaba, and he will have direct charge of the tie treating plant and perform such other duties as may be assigned to him. C. E. Andrews, superintendent at Green Bay, Wis., succeeds Mr. Linsley. J. W. Doyle, superintendent of the Dakota division at Huron, S. D., has been appointed superintendent of the Minnesota division, with office at Winona, Minn., succeeding E. E. Nash, and H. E. Dickinson, superintendent at Mason City, Iowa, succeeds Mr. Doyle. H. Rettinghouse, division engineer at Boone, Iowa, has been appointed superintendent of the Iowa and Minnesota division; A. N. LaComb, assistant superintendent at Green Bay, Wis., has been appointed superintendent of the Lake Shore division, and W. H. Dolan has been appointed assistant superintendent of that division. F. D. Pendell, assistant superintendent of the Northern Wisconsin division at North Fond du Lac, Wis., has been appointed superintendent, with office at North Fond du Lac, succeeding A. F. Reiner, resigned, and G. C. Boomer succeeds Mr. Pendell.

Traffic Officers.

C. G. Mell has been appointed assistant commercial agent of the Galveston, Houston & Henderson.

G. A. Gamble has been appointed commercial agent of the Lehigh Valley, with office at St. Louis, Mo.

Charles A. Fullen has been appointed general agent of the Chicago Great Western, with office at Fargo, N. D.

W. W. Gilgas has been appointed traveling passenger agent of the Chicago, Indianapolis & Louisville, with office at Bloomington, Ind.

Isaac Banks has been appointed traveling agent of the Chicago & North Western, with office at Philadelphia, Pa., succeeding J. M. Hutchins, transferred to Chicago.

S. W. Morrow has been appointed traveling pasenger agent of the Missouri Pacific-Iron Mountain system, with office at Little Rock, Ark., succeeding C. S. Blackman, transferred.

W. J. Sheridan has been appointed a traveling freight agent of the Buffalo, Rochester & Pittsburgh, in charge of Canadian territory, reporting to the coal freight agent at Rochester, N. Y.

Charles M. Pendleton has been appointed advertising manager of the St. Louis & San Francisco, with office at St. Louis, Mo., succeeding G. W. Hutchinson, resigned to engage in other business.

W. Corbett, traveling passenger agent of the Canadian Pacific at Toronto, Ont., has been appointed terminal passenger agent at Toronto, and J. J. Anderson, traveling passenger agent at North Bay, Ont., has been appointed traveling passenger agent at Toronto.

John T. Bowe, traffic manager of the Pullman Railroad Company at Chicago, has been appointed assistant general freight agent of the Trinity & Brazos Valley, with office at Houston, Tex., succeeding J. A. Brown, resigned about February 1 to go with the St. Louis & San Francisco lines in Texas.

Herman L. Traber, whose appointment as general freight agent of the Missouri, Oklahoma & Gulf, with office at Muskogee, Okla., has been announced in these columns, has been appointed also general passenger agent succeeding Percy Talbot, general freight and passenger agent, resigned.

L. B. Shepherd, traveling passenger agent of the Chicago & Alton and the Toledo, St. Louis & Western at Denver, Colo., has been appointed Southwestern passenger agent, with office at Dallas, Tex., succeeding George W. Thomas, resigned to accept service with the Texas & Pacific. T. M. Sommers, city passenger agent at Kansas City, Mo., succeeds Mr. Shepherd, and R. A. Pearce succeeds Mr. Sommers.

E. C. Roxbury, traveling freight and passenger agent of the Denver & Rio Grande and the Western Pacific at Kansas City, Mo., has been appointed general agent of those roads, with office at Kansas City, succeeding H. V. Luyster, deceased. O. P. Applegate, traveling freight and passenger agent at Detroit, Mich., has been appointed general agent, with office at Detroit. G. C. Henderson succeeds Mr. Roxbury. J. G. Lowe, traveling passenger agent of the Western Pacific at Kansas City, has been ap-

pointed district passenger agent, with office at San Francisco, Cal., succeeding J. H. Pearman, resigned.

T. J. Turrentine, city passenger agent of the Queen & Crescent Route at Birmingham, Ala., has been appointed traveling passenger agent, with office at Meridian, Miss., a new position. S. H. Johnson succeeds Mr. Turrentine. O. H. Chandler has been appointed traveling passenger agent, with headquarters at Knoxville, Tenn., succeeding T. H. Mitchell. W. W. Dunnavant, traveling passenger agent at Cleveland, Ohio, has been appointed district passenger agent, with office at Pittsburgh, Pa., and R. M. Burr succeeds Mr. Dunnavant. J. W. Cook has been appointed traveling freight agent, with office at Atlanta, Ga., and O. C. Pope has been appointed traveling freight agent with headquarters at Birmingham, Ala. Henry Hoving has been appointed traveling freight agent, with office at Milwaukee, Wis.

Edward S. Sullivan, passenger agent of the Southern Railway at Selma, Ala., has been appointed traveling passenger agent at Seattle, Wash. R. H. Graham, city passenger and ticket agent at Asheville, N. C., has been appointed traveling passenger agent at St. Paul, Minn., and G. W. Carter has been appointed traveling passenger agent at Montreal, Que. All of the foregoing are new agencies. S. M. Dent has been appointed traveling passenger agent at Boston, Mass., and T. B. Martin has been appointed traveling passenger agent, with office at Philadelphia, Pa. Grover C. Robson, city passenger and ticket agent at Selma, Ala., has been appointed traveling passenger agent, with office at Selma, and F. B. Pinson, passenger and ticket agent at Spartanburg, S. C., has been appointed traveling passenger agent with office at Tampa, Fla.

Engineering and Rolling Stock Officers.

D. C. Ross has been appointed master car builder of the Michigan Central, with office at Detroit, succeeding James A. Chubb, deceased.

J. H. Stinson, roadmaster of the Southern Kansas Railway of Texas at Canadian, Tex., has been appointed roadmaster of the Pecos & Northern Texas, with headquarters at Slaton, Tex., succeeding D. O'Connell.

J. E. Fitzsimons, road foreman of engines of the Central Vermont of St. Albans, Vt., has been apointed acting superintendent of motive power and car department, with office at St. Albans, succeeding T. McHattie, resigned.

W. F. Hart, roadmaster of the Southern Kansas Railway of Texas at Woodward, Tex., has been appointed roadmaster, with headquarters at Canadian, Tex., succeeding J. H. Stinson, resigned to accept service with another company.

C. H. Shasteen has been appointed acting roadmaster of the Atchison, Topeka & Santa Fe, with headquarters at Syracuse, Kan., succeeding C. B. Butner, and Samuel McGaughey has been appointed roadmaster, with office at Belvidere, Kan., succeeding John Thorpe.

H. A. Gass, assistant supervisor of the Pennsylvania Railroad at Paoli, Pa., has been appointed assistant supervisor of division No. 9, with office at Altoona, Pa., succeeding T. E. Fugate, and F. H. Bentley has been appointed assistant supervisor of division No. 2, succeeding Mr. Gass.

V. C. Randolph, supervisor of locomotive operation of the Erie at Salamanca, N. Y., has been appointed master mechanic of the Rochester division of the Erie, the New York, Susquehanna & Western, and the New Jersey & New York, with office at Avon, N. Y., succeeding F. G. DeSaussure, transferred.

H. C. Phillips, chief engineer of the Atchison, Topeka & Santa Fe Coast Lines at Los Angeles, Cal., has been appointed valuation engineer of the entire Santa Fe system, with office at Chicago, a new position. G. W. Harris, engineer of construction on the Coleman-Lubbock cut-off of the Santa Fe in west Texas, succeeds Mr. Phillips.

Abram E. Smith, mechanical engineer of the Union Tank Line Company, has been appointed assistant master car builder, with office at New York, succeeding Thomas Beaghen, Jr., promoted. Mr. Smith was born in Hereford, Eng., on February 2, 1879, and entered the service of the Union Tank Line Company on February 12, 1902, as a stenographer and draftsman. During the period 1902 to 1907, he attended the evening classes at Cooper Institute, and later graduated from the Cooper Union School of Science. On May 1, 1907, he was made mechanical engineer of the Union Tank Line Company, which position he held until his recent promotion to assistant master car builder as above noted.

F. F. Busteed, general superintendent of the Manitoba division of the Canadian Pacific at Winnipeg, Man., has been appointed engineer in charge of grade revision and double tracking for lines from Calgary, Alta., west, with headquarters at Kamloops, B. C. F. Lee, division engineer at Winnipeg, has been appointed principal assistant engineer, with office at Winnipeg, and R. C. St. John, assistant engineer at Winnipeg, has been appointed engineer maintenance of way with headquarters at Winnipeg. Frank Taylor, division engineer of the Lake Superior division at North Bay, Ont., has been appointed division engineer of the Eastern division with office at Montreal, Que., succeeding C. B. Brown, promoted.

Paul Hamilton, engineer maintenance of way of the Cleveland, Cincinnati, Chicago & St. Louis at Springfield, Ohio, has been appointed engineer maintenance of way of the Cleveland division, with office at Galion, Ohio, succeeding J. G. Shillinger, resigned to accept service with another company. A. S. More, engineer maintenance of way of the Cairo division at Mt. Carmel, Ill., succeeds Mr. Hamilton on the Cincinnati division, and W. C. Kegler, engineer maintenance of way of the Michigan division at Wabash, Ind., succeeds Mr. More. C. W. Cochran, assistant engineer of the Cleveland division at Galion, Ohio, has been appointed engineer maintenance of way of the Michigan division, succeeding Mr. Kegler.

C. W. P. Ramsey, whose appointment as engineer of construction in charge of the Eastern Lines, of the Canadian Pacific, with office at Montreal, Que., has been announced in these columns, was born in 1882 at Bury, Que. He began railway work with the Canadian Pacific in 1898, and was in the mechanical department of that road until 1900. From 1903 to 1906 he was in the engineering department, and during the latter two years was engaged in location work, and from 1906 to 1910 he was assistant engineer in charge of the construction of new lines and double-tracking work. Mr. Ramsey was appointed division engineer of construction of the Canadian Pacific in 1910, which position he held at the time of his recent appointment as engineer of construction in charge of the Eastern Lines, as above noted.

W. J. Tollerton, assistant general superintendent of motive power of the Rock Island Lines at Chicago, has been appointed mechanical superintendent, with office at Chicago, and his former position has been abolished. J. B. Kilpatrick, superintendent of motive power of the First district at Davenport, Iowa, has been appointed district mechanical superintendent of the First district, with office at Des Moines. S. W. Mullinix, superintendent of motive power of the Second district at Topeka, Kan., has been appointed district mechanical superintendent of the Second district, with office at Topeka, and C. M. Taylor, superintendent of motive power of the Third district at El Reno, Okla., has been appointed district mechanical superintendent of the Third district, with office at El Reno, and the three positions of superintendent of motive power have been abolished.

Thomas Beaghen, Jr., assistant master car builder of the Union Tank Line Company, has been appointed master car builder, with office at New York, succeeding Charles M. Bloxham, who has retired on account of ill health. Mr. Beaghen was born on April 20, 1876, in Hancock, Delaware county, New York. After graduating from the Hancock High School and taking several special courses in mathematics, chemistry, etc., he graduated from Pratt Institute of Technology. He also took a special course of mechanical engineering at Lehigh University. He then entered the mechanical department of the New York Central, and later was connected with the American Steel Foundries Company and the United States Metals & Manufacturing Company. Mr. Beaghen entered the service of the Union Tank Line Company on March 15, 1909, as inspector of materials, and was made assistant master car builder on June 1, 1910, which position he held at the time of his recent appointment as master car builder of the same company.

Henry H. Decker, division engineer of the Minnesota and Dakota divisions of the Chicago & North Western at Winona, Minn., has been appointed engineer of maintenance of the lines east of the Missouri river, with office at Chicago, succeeding Walter J. Towne, promoted. (See item under Operating Officers.) M. E. Thomas, division engineer of the Madison division at Madison, Wis., succeeds Mr. Decker; and S. S. Long, acting division engineer of the Ashland division at Antigo, Wis., succeeds Mr. Thomas. L. J. Putnam, resident engineer at Necedah, Wis., has been appointed division engineer of the East Iowa, the West Iowa and the Iowa and Minnesota divisions, with office at Boone, Iowa, succeeding H. Rettinghouse, transferred to the operating department. J. A. S. Redfield, division engineer of the Sioux City division at Sioux City, Iowa, has been appointed division engineer of the Northern Wisconsin and Lake Shore divisions, with office at North Fond du Lac, Wis., succeeding W. W. Gaffin, resigned to engage in other business; and R. W. Richardson has been appointed division engineer of the Sioux City and Northern Iowa divisions, with office at Sioux City.

Purchasing Officers.

A. M. Darlow, mechanical engineer of the Buffalo & Susquehanna at Galeton, Pa., has been appointed also general storekeeper.

G. E. Smith has been appointed purchasing agent of the Louisiana Railway & Navigation Company, with office at Shreveport, La., succeeding C. L. Vaughn, superintendent of transportation and purchasing agent, resigned to accept service with another company.

OBITUARY.

H. H. Cage, general southern agent of the Erie, with office at Memphis, Tenn., died in St. Louis, Mo., on March 21.

S. C. Clark, southeastern freight agent of the Chicago & Alton, with office at Louisville, Ky., died at Louisville on March 28.

W. B. Kelby, traveling freight agent of the Chicago, Burlington & Quincy, with office at Cincinnati, Ohio, died at that place on March 24.

C. M. Roquette, architect of the St. Louis & San Francisco, with office at Springfield, Mo., died at his home in Springfield on March 24. Mr. Roquette was made architect of the St. Louis & San Francisco in 1901, previous to which year he was architect of the Atchison, Topeka & Santa Fe.

W. M. Clements, who was at one time general manager of the Baltimore & Ohio lines east of the Ohio river, died on March 28, at his home in Summit Point, W. Va., at the age of 72. Mr. Clements was born in West Virginia, and began work on the Baltimore & Ohio as a track laborer. After serving as agent at various stations, he was made general agent at Baltimore, Md. From August to October, 1877, he was assistant master of transportation and then became master of transportation of the same road. In October, 1885, he was appointed general superintendent of the New York, Pennsylvania & Ohio, now a part of the Erie. From July, 1886, to April, 1887, he was general manager of the Erie Express Company, and was then appointed general manager of the Baltimore & Ohio lines east of the Ohio river, serving until May, 1889, when he retired from railway service.

Webster Snyder, formerly second vice-president and general manager of the Gulf, Colorado & Santa Fe, died at his home in Dallas, Tex., on March 26, at the age of 77 years. Mr. Snyder was engaged in railway work from 1856 until 1888. He was with the Union Pacific from 1865 to 1869, first as general freight and ticket agent, and later as general superintendent. From 1869 to 1870 he was general manager of the Bennington & Rutland, now the Rutland Railroad, and was then for a year assistant to the president of the Long Island Railroad. He was general superintendent of the Canadian Southern from 1873 to 1875, and during the next year was general manager of the Long Island. From 1882 to 1884 he was general manager of the Louisville, Evansville & St. Louis, in the latter year went with the Gulf, Colorado & Santa Fe as general manager and chief engineer, and was subsequently made second vice-president and general manager. At the time of his death Mr. Snyder was engaged in the banking business at Dallas.

Equipment and Supplies.

LOCOMOTIVE BUILDING.

The Grand Trunk is in the market for 25 locomotives.

The Pekin & Kalgan, China, is in the market for 10 locomotives.

The Great Northern has ordered 25 Mallet locomotives from the Baldwin Locomotive Works.

The Union Pacific is making tentative inquiries for 10 mikado locomotives and 25 Pacific type locomotives.

The St. Louis Southwestern is said to be in the market for 25 locomotives. This item has not been confirmed.

The Erie is making tentative inquiries for five Pacific type locomotives. Nothing has been definitely decided on yet.

The Atlanta, Birmingham & Atlantic has ordered 10 mikado locomotives from the Baldwin Locomotive Works.

The United States Metals Refining Company, New York, has ordered two four-wheel switching locomotives from the Baldwin Locomotive Works.

The Charleston & Western Carolina has ordered three consolidation locomotives and three six-wheel switching locomotives from the Baldwin Locomotive Works.

The Chicago, Milwaukee & St. Paul has ordered 50 mikado locomotives from the American Locomotive Company. These locomotives will be equipped with superheaters.

The Taiwan Railway, Formosa, has ordered three Pacific type locomotives from the American Locomotive Company. The dimensions of the cylinders will be 18½ in. x 24 in.; the diameter of the driving wheels will be 63 in., and the total weight in working order will be 156,000 lbs. These locomotives will be equipped with superheaters.

The Duluth, South Shore & Atlantic has ordered two Pacific type locomotives from the American Locomotive Company. The dimensions of the cylinders will be 20½ in. x 26 in.; the diameter of the driving wheels will be 64 in., and the total weight in working order will be 185,000 lbs. These locomotives will be equipped with superheaters.

The Norfolk & Western has ordered 25 Mallet (2-6-6-2) locomotives from the American Locomotive Company. These locomotives will be equipped with superheaters, and will be similar to the 15 locomotives recently ordered from this company, and mentioned in the *Railway Age Gazette* of January 19. The dimensions of the cylinders will be 22 in. and 35 in. x 32 in.; the diameter of the driving wheels will be 56 in., and the total weight in working order will be 405,000 lbs.

The Toronto, Hamilton & Buffalo has ordered two consolidation locomotives and two six-wheel switching locomotives from the Montreal Locomotive Works. The consolidation locomotives will have 23-in. x 28-in. cylinders, 55-in. driving wheels, and in working order will weigh 205,000 lbs. These locomotives will be equipped with superheaters. The switching locomotives will have 21-in. x 28-in. cylinders, 51-in. driving wheels, and in working order will weigh 166,000 lbs.

The Manila Railroad, Philippine Islands, has ordered five consolidation locomotives and five 10-wheel locomotives from the American Locomotive Company. The consolidation locomotives will have 17-in. x 24-in. cylinders, 48-in. driving wheels, and in working order will weigh 118,000 lbs. The 10-wheel locomotives will have 17-in. x 24-in. cylinders, 60-in. driving wheels, and in working order will weigh 118,000 lbs. Both the consolidation locomotives and the 10-wheel locomotives will be equipped with superheaters.

CAR BUILDING.

The Rutland is figuring on a number of passenger cars.

The Lehigh Valley is in the market for 250 refrigerator cars.

The Chicago & North Western is building 60 cabooses at its own shops.

The Illinois Central has ordered six dining cars from the Pullman company.

The Intercolonial has ordered three sleeping cars from the Pullman Company.

The Grand Trunk has ordered six sleeping cars from the Canadian Car & Foundry Company.

The Wabash has ordered 750 automobile cars from the Western Steel Car & Foundry Company.

The Northern Pacific has ordered 50 express cars from the American Car & Foundry Company.

The Texas & Pacific has ordered 70 chair cars and eight coaches from the Pullman Company.

The Delaware, Lackawanna & Western is said to be making inquiries for 200 box cars. This item has not been confirmed.

The International & Great Northern has ordered six 70-ft. chair cars, seven 70-ft. coaches, seven baggage cars and three steel postal cars from the American Car & Foundry Company.

IRON AND STEEL.

The Atlantic Coast Line is in the market for 1,600 tons of bridge material.

The Chicago Great Western is in the market for from 7,000 to 10,000 tons of bridge material.

The Chicago, Milwaukee & St. Paul has ordered 25,000 tons of rails from the Illinois Steel Company.

The Chicago, St. Paul, Minneapolis & Omaha has ordered 11,000 tons of rails from the Illinois Steel Company.

General Conditions in Steel.—The volume of new business booked by the Steel Corporation during the past two weeks has shown a marked decrease. This is due to the recent price advances of about $1 a ton, on the average. The unfilled orders on the books were large, and as prices were exceedingly low, manufacturers raised the prices, believing that consumers would place orders at the higher level. Consumers have felt that the overcapacity of the mills would prevent the manufacturers from raising prices. The result is that there has been a temporary lull in the steel industry, but it is generally believed that there will be a large increase in orders placed about the middle of April and that the present prices will hold. Both production and shipments during March largely exceeded new orders, so a decrease in the unfilled tonnage is expected for that month.

FOREIGN RAILWAY NOTES.

The German consulate at Buenos Ayres reports that during 1911 2,045 miles of new railway were opened in Argentina, 982 miles of which were state railway. The total mileage at the end of the year was 19,963. On the average the railways earned 4¼ per cent. on their capital.

The course of freight car enlargement in Germany has been traced. In Baden 22,000-lb. cars were first built in 1859. Up to that time the standard capacity had been 12,000 lbs., following English practice. In 1892 the standard capacity was raised to 27,500 lb., and in that year a few cars were built to carry 33,000 lbs. The latter are likely soon to prevail; but there are still many 22,000-lb. cars and a very few of the old 12,000-lb. cars.

In Austria the state railways are operated in different systems, whose extent in many cases is that of the companies to which they formerly belonged. Recently a statement has been made of the earnings of each system separately, showing extraordinary results. For instance, the system managed at Vienna earned $10,700,000 gross and only $73,000 net, the operating expenses being 99⅓ per cent. of the earnings. Against this, the system managed at Cracow earned gross $10,300,000 and net $4,140,000, the operating expenses being only about 60 per cent. Three systems fail to earn their expenses, that of Triest spending $3,800,000 to earn $2,900,000, and another whose expenses are 105 per cent. of the earnings, and a third on which they are 121 per cent. The average operating expenses for all the state railways is 79.6 per cent. The total net earnings for all the state railways is $31,000,000 and the total gross earnings is $151,000,000.

Supply Trade News.

Dr. P. H. Conradson, chief chemist of the Galena Signal Oil Company, Franklin, Pa., has cancelled his engagement to lecture on the Lubrication of Steam Engines, in the Karpen building, Chicago, April 10-13.

The sales department of the Union Switch & Signal Company, Swissvale, Pa., changes in the organization of which were noted in the *Railway Age Gazette* of March 29, remains in charge of S. G. Johnson, general sales manager, whose headquarters are in New York.

The McKeen Motor Car Company, Omaha, Neb., has recently opened an office in the Hudson Terminal building, 30 Church street, New York, and has appointed Stephen D. Barnett as eastern representative. This company has recently received an order for two 70-ft. gasolene motor cars from the Weatherford, Mineral Wells & Northwestern. There are now 122 McKeen motor cars in service in the United States, Mexico and Australia.

On March 28, the United States District Court for the district of New Jersey, in an opinion by Judge Cross, handed down its decision in a suit of the Westinghouse Air Brake Company, Pittsburgh, Pa., vs. the New York Air Brake Company, New York. The complainant alleged that patent No. 912,511, covering the K-triple valve, and patent No. 912,512, for a check valve, had been infringed by the defendant. The court decided in favor of the complainant as to the K-triple valve patent, but dismissed the complaint as to the other patent, it being evidently of minor importance and value, and the court holding it invalid.

The Reed-Prentice Company, Worcester, Mass., has recently been incorporated with $2,500,000 capital. This corporation is a merger of the following companies, all of Worcester: The F. E. Reed Company, manufacturer of lathes, with 450 employees; the Prentice Brothers Company, manufacturer of geared head lathes and drills, with 400 employees; the Reed Foundry Company, manufacturer of heavy machinery, with 50 employees; the Reed & Curtis Machine Screw Company, manufacturer of machine screws and machine tools, with 50 employees, and the Crompton Associates, manufacturers of heavy machinery and tools.

TRADE PUBLICATIONS.

Culverts.—The Canton Culvert Company, Canton, Ohio, has published form No. 26 on its Acme Nestable Corrugated No-Co-Ro metal culverts. It is illustrated and gives descriptions and calls attention to the advantages of these culverts.

Equipment and Supplies.—The Walter A. Zelnicker Supply Company, St. Louis, Mo., has published in a small booklet a list of its new and second-hand equipment and supplies, including locomotives, cars, contractors' supplies, track supplies, dredges, derricks, pumps, scales, engines, hoists, steam shovels, etc.

Southern Railway.—The land and industrial department of this company has published a 32-page illustrated booklet on Kentucky, in which it describes the physical conditions, the climate, the resources and the products of this state. This booklet will be found very useful to the prospective home-seeker or investor, as it includes many definite facts on the various industries in Kentucky.

Texas & Pacific.—The passenger department of this company has published the first number of its quarterly for 1912. This issue contains about 100 pages, is fully illustrated and gives detailed information on the productivity and fertility of the territory along the company's lines. Separate discussions are devoted to the different sections of the country, and valuable data are given on the numerous opportunities for both industrial and agricultural enterprises.

The African Midland Railway in German East Africa was completed to Tabora, 526 miles from the coast on February 27, two years before the time specified. This railway was built by a joint-stock company, but Germany owns nearly all its shares.

Railway Construction.

New Incorporations, Surveys, Etc.

Campbellford, Lake Ontario & Western.—See Canadian Pacific.

Canadian Northern.—A bill has been introduced in the Canadian parliament, which provides for the construction of the Canadian Northern Alberta from a point 150 miles from St. Albert, Alta., west to the British Columbia boundary at Yellowhead Pass, 115 miles. The government guarantees the bonds on this section at the rate of $35,000 a mile, and it had previously guaranteed bonds at the rate of $13,000 a mile for the first 50 miles, and at the rate of $25,000 a mile for the next 100 miles of the line from Edmonton. T. Turnbull, assistant chief engineer, Winnipeg.

Announcement has been made that the following improvements are to be carried out by the Canadian Northern during 1912: Construction of a 58-mile section between Montreal and Hawkesburg, near Ottawa, Ont.; from Ottawa west on the Sudbury section, 32 miles; from Ruel west towards Port Arthur, 100 miles; and from Port Arthur east towards Sudbury, 108 miles. Seventy-five miles of main line will be built in British Columbia, about 400 miles of extensions in Alberta and Saskatchewan, and 80 miles of the main line in Manitoba will be relaid with new rails. In addition, the Toronto-Ottawa line will be completed by the construction of 80 miles east from Sydenham. On the completion of these improvements there will be less than 1,000 miles of main line yet to be built to complete the through line from Montreal, Que., west to Vancouver, B. C. T. Turnbull, assistant chief engineer, Winnipeg, Man.

Canadian Northern, Alberta.—See Canadian Northern.

Canadian Pacific.—An officer writes that contracts have been given to Dutton & Timson, Winnipeg, Man., for grading 80 miles from Swift Current, Sask., northwest, also for double-tracking work from Regina west to Pasqua, 35 miles, and from Caron west to Chaplin, 38 miles. J. D. Sullivan, chief engineer, Western Lines, Winnipeg, Man. (March 22, p. 700.)

An officer writes that the Campbellford, Lake Ontario & Western has been leased to the Canadian Pacific. The company plans to build from the Canadian Pacific at a point 15 miles west of Smiths Falls, Ont., southwest to Belleville, 75 miles, thence west along the north shore of Lake Ontario, via Trenton, Cobourg, Port Hope, Bowmanville, Oshawa and Whitby, to a connection with the Canadian Pacific at Agincourt, a total of about 184½ miles. Contracts for grading, track laying, etc., have been let to Deeks & Hinds, Toronto, and the work is now under way. The maximum grades will be .4 per cent., and maximum curvature 4 deg. C. W. P. Ramsey, engineer of construction, Eastern Lines, Montreal. (March 22, p. 700.)

Cape Charles.—See New York, Philadelphia & Norfolk.

Carolina, Clinchfield & Ohio.—See this company in Financial News.

Columbus, Chattahoochee Valley & Gulf.—Application has been made for a charter in Georgia to build from Georgetown, Ga., northwest along the valley of the Chattahoochee river to Atlanta, about 180 miles. Josiah Flournoy, Columbus, Ga., may be addressed.

Erie.—See this company in Financial News.

Fairchild & North Eastern.—An officer writes that bids will be asked for soon to build an extension from the present western terminus at Fairchild, Wis., west to Caryville, about 40 miles. J. H. Thomas, chief engineer, Fairchild. (February 2, p. 221.)

Great Northern.—An officer writes that a contract has been given to Guthrie, McDougall & Company, Portland, Ore., to build from Wenatchee, Wash., northeast to Pateros, 56 miles. A. H. Hogeland, chief engineer, St. Paul, Minn. (March 8, p. 453.)

Gulf, Colorado & Santa Fe.—The San Saba district of the Southern division has been extended from Brady, Tex., west to Eden, 32 miles. F. Merritt, chief engineer, Galveston, Tex.

Holton Interurban.—This road has been extended from Seeley, Cal., to Dixieland. W. F. Holt, president and general manager, Redlands, Cal.

Louisville & Nashville.—A new line has been opened for business from Allingham, Tenn., north to Harriman, 17½ miles. W. H. Courtenay, chief engineer, Louisville, Ky.

Mexican Pacific.—A contract has recently been entered into between this company and the government of Mexico to build from Balsas, the present terminus of the Cuernavaca division of the National Railways of Mexico to the port of Zihuatanejos on the Pacific coast in the state of Guerrero. A branch is also to be built from Las Palomas to El Organal. The concession requires that 65 miles shall be finished from Balsas and 35 miles from Zihuatanejos during the first year. The company plans to have all work finished within three years. Joseph Castlelot, vice-president, Mexico City, Mex.

Missouri, Kansas & Texas.—An officer writes that this company has been considering the question of building from Waskom, Tex., to Lockhart, but has not yet definitely decided to carry out the work. S. B. Fisher, chief engineer, St. Louis, Mo.

Missouri, Oklahoma & Gulf.—This company, which recently gave a contract to McCabe & Steen, Fairland, Okla., to build 300 miles in Oklahoma and Texas, has given another contract to the same contractors to build an extension from Henryetta, Okla., to Oklahoma City, also from Denison, Tex., to Dallas. J. J. Harrison, chief engineer, Muskogee, Okla. (March 29, p. 780.)

Montreal Tunnel Company.—An officer writes that this company has been incorporated in Canada with $15,000,000 capital, to construct a tunnel under the St. Lawrence river from a point on the south shore between Longueuil, Que., and St. Lambert to Montreal, together with connections with St. Helen's Island. D. McDonald, president, and Patrick Dubee, secretary-treasurer, Montreal.

Murfreesboro Electric.—An officer writes that the prospects of building this line are good. The projected route is from Nashville, Tenn., southwest via Murfreesboro to Woodbury, about 50 miles. R. T. Wilson, president, Nashville.

New York, Philadelphia & Norfolk.—The Cape Charles Railroad has been extended from Townsend, Va., to Kiptopeke, 3½ miles. W. A. Patton, president, Philadelphia, Pa.

New York Subways.—The New York Public Service Commission, First district, has given a contract for building section 2-A of the Broadway-Lexington avenue subway to the O'Rourke Engineering & Construction Company, New York. This section extends from Walker street to Howard street, in the borough of Manhattan, and includes the Canal street station.

North & South Carolina.—This road has been extended from Mullins, S. C., to Pee Dee Wye, 22 miles. W. R. Bonsal, president and treasurer, Hamlet, N. C.

Oregon Electric.—This road, which now extends from Portland, Ore., south to Salem, 51 miles, with a branch to West Woodburn and Woodburn, three miles, and from Garden Home west to Forest Grove, 19 miles, is building an extension from Salem south via Albany to Eugene, 70 miles, and a branch will also be built from Tualatin, southwest to McMinnville, 31 miles. A new sub-station is to be put up at Waconda, and four other stations are to be located along the new line from Salem to Eugene. L. B. Wickersham, chief engineer, Portland. (February 23, p. 360.)

Oregon & Southern (Electric).—An officer writes that this company is now letting contracts to build from Medford, Ore., through the Rogue river valley to a point in California, about 63 miles. J. R. Mitchell, chief engineer, Roseburg, Ore.

Petaluma & Santa Rosa (Electric).—Incorporated in California with $250,000 capital, and headquarters at Petaluma. The plans call for building from Liberty, Cal., west via Bloomfield, to a point on the Pacific coast near Bodega, 18 miles. J. E. Alexander, B. Levy, A. F. Hoehmer and D. S. Hyde, all of San Francisco, and W. F. Ferguson, Santa Rosa, are directors of the company.

Piedmont & Northern (Electric).—An officer writes that

work is about finished on the section from Charlotte, N. C., southwest to King's Mountain, and that 23 miles of this section from Charlotte to Gastonia is now in operation. W. S. Lee, vice-president, and E. Thomason, assistant vice-president, Charlotte. (October 27, p. 860.)

Quebec & Saguenay.—Work has been under way for some time between Cap Tourmenti, Que., and Murray bay, and it is expected that track will be laid on about 65 miles before September. When completed the line is to run from St. Joachim to a point northeast of Murray bay at the Falls. Work is now under way on short tunnels at Cap Rouge and at Cap Martin. O'Brien & Doheny, Quebec, are the contractors. An exploration survey was recently made between Murray bay and Ha Ha bay, 73 miles; it is expected that work on the line will be started soon. A. H. N. Bruce, chief engineer, 85 Dalhouser street, Quebec. (March 1, p. 409.)

San Antonio, Rockport & Mexican.—An officer writes that this company, which was incorporated in Texas in September, 1911, will build from San Antonio, Tex., via Crowther and Rockport, to Harbor Island, also from Crowther to a point on the Rio Grande, a total of 337 miles, with 33 miles of sidings. A contract for the construction work has been let to the European Contract Syndicate, Limited, London, England, which has sublet some of the work between San Antonio and Harbor Island to the Shattuck-Edinger Company, of San Francisco, Cal., and Los Angeles. The contract calls for the completion of the work on about 175 miles within 18 months. Work on the section from Crowther to the Rio Grande is to be finished within three years. The plans of the company provide for an extension from the Rio Grande to Tampico, Mex., and the City of Mexico, also from San Antonio, Tex., north to San Angelo. The preliminary surveys for these extensions will be started as soon as the final survey for the line to the Rio Grande has been completed. The line is to be laid with 90-lb. rail on eight inches of rock or gravel ballast, and the bridges are to be of steel and concrete construction. At San Antonio, it is planned to put up a station to cost $125,000. The company proposes to build docks and terminals at Harbor Island, and has secured a frontage of 2,000 ft. on the harbor. E. Cowper-Thwaite, president; S. A. Hopkins, first vice-president; R. R. Russell, second vice-president; J. H. Haile, treasurer; and J. Frank Davis, secretary, San Antonio. (January 5, p. 37.)

Temiskaming & Northern Ontario.—The contract for building the branch from Earlton, Ont., to Elk Lake, about 30 miles, calls for the excavation of about 340,000 cu. yds. of earth and about 1,000 cu. yds of rock work. There is to be a steel bridge 300 ft. long, with one center and two approach spans, over the Montreal river at mile 22.75, and a 600-ft. trestle over the Jean Baptist river at mile 12. The maximum grades will be 1 per cent. compensated, and maximum curvature 6 deg. McCaffery & McQuigge, Toronto, have the contract for all the work except the steel work. S. B. Clement, chief engineer and superintendent maintenance, with headquarters at North Bay, Ont. (March 29, p. 781.)

Three Forks, Helena & Madison.—An officer writes that contracts are to be let at once to build from Helena, Mont., southwest via Radersburg and Three Forks to Yellowstone, on the Oregon Short Line, at the entrance to Yellowstone Park, about 150 miles. The maximum grades will be 1.5 per cent. There will be two steel bridges. The line is to be built to carry ore from Radersburg and wheat and other products. A. D. Adkins, president, and B. L. Allen, chief engineer, with headquarters at Three Forks.

Yadkin River.—An officer writes that the prospects of building this line are good. The projected route is from a connection with the Southern Railway at North Wilkesboro, N. C., west up the Yadkin river to the mouth of Elk Creek, thence via Cook's Gap to Boone, about 45 miles. The work is to be carried out by the company's men, and will be difficult on about 25 miles. Approximate cuts and fills will average 25,000 cu. yds. a mile. The maximum grades will be 2.2 per cent. compensated, and maximum curvature 10 deg. There will be 1,000 ft. of trestles, and 800 ft. of tunnels. The company expects to develop a traffic in lumber, dairy products and iron ore. W. J. Grandin, president, Tidioute, Pa., and H. C. Landon, chief engineer, Lenoir, N. C. (March 1, p. 409.)

RAILWAY STRUCTURES.

Calgary, Alta.—The Grand Trunk Pacific has bought land to be used as a site for a new station to be built at Calgary.

Chicago Junction, Ohio.—The Baltimore & Ohio has given a contract to P. Farrell, Cincinnati, Ohio, for remodeling the passenger station at Chicago Junction. An additional building, 40 ft. square, is also to be built. The cost of the improvements will be $25,000.

Cumberland, Md.—See Hagerstown, Md.

Elkhart, Ind.—Work has been resumed on the $3,000,000 Lake Shore & Michigan Southern shops at Elkhart.

Galt, Ont.—The Canadian Pacific has bought about four acres of land on Main street, to be used as a site for a downtown freight terminus. The plans call for putting up a freight shed, 290 ft. long, and laying seven tracks. The cost of the improvements will be over $100,000.

Hagerstown, Md.—The Western Maryland has given contracts to the Roberts & Schaefer Company, Chicago, for four large Holmen locomotive coaling stations. They are to be built at Hagerstown and at Cumberland, Md., at Rockwood, Pa., and at West Virginia Central Junction, W. Va. Two of the stations will be of 500 tons capacity, and are to be built to span and coal on four main-line tracks, having 24 ft. centers. The same company put up for the Western Maryland at Elkins, W. Va., a similar structure, which is now in operation.

Harbor Island, Tex.—See San Antonio, Rockport & Mexican under Railway Construction.

Nanticoke, Pa.—Residents of Nanticoke have asked the county commissioners to replace the present Market street bridge over the Susquehanna river, with a new concrete and steel structure, to carry double tracks for the street railway companies.

New Orleans, La.—The New Orleans Terminal Company is planning to spend about $1,000,000 in improvements in its terminal, including the construction of new slips at Chalmette, renewing of the old wharf at Port Chalmette with treated timbers, and the erection of a 500,000-bushel elevator, warehouses and cotton sheds.

New York.—Samuel Rea, president of the New York Connecting Railway, announces that a contract for the foundation and masonry of the Bronx viaduct, to be 4,000 ft. long, has been let to Arthur McMullen, New York.

Port Colborne, Ont.—The Niagara, St. Catharines & Toronto has applied for permission to build a bridge over the canal at Port Colborne.

Rockwood, Pa.—See Hagerstown, Md.

Salamanca, N. Y.—The Buffalo, Rochester & Pittsburgh has given contracts to the Pittsburgh Construction Company, Pittsburgh, Pa., to put up passenger and freight stations at Salamanca. The structures are to be of brick and stone construction.

San Antonia, Tex.—See San Antonio, Rockport & Mexican under Railway Construction.

Scranton, Pa.—The Central Railroad of New Jersey is preparing plans for a new passenger station to be built at Scranton.

Waconda, Ore.—See Oregon Electric under Railway Construction.

Walla Walla, Wash.—The Northern Pacific will build a new passenger station to cost about $50,000.

West Virginia Central Junction, W. Va.—See Hagerstown, Md.

When Guyer-Zeller first urged the building of a railway up the Jungfrau, he estimated that it could be built in five years and would cost $1,600,000. It will be about 20 years before the summit is reached, and it will cost at least $3,200,000. The traffic also was underestimated, and instead of 50,000 passengers in the season on the completed road, there were last year 84,000, while the two upper stations had not yet been reached.

Railway Financial News.

ARTESIAN BELT RAILROAD.—The sale of this road, which runs from Macdonna, Tex., through San Antonio to a point 60 miles south of there, was mentioned in these columns last week. The sale was made for $200,000 to H. E. Hildebrand, who the *Commercial and Financial Chronicle* says will not be in a position to tell what interests he represents until May 1.

BOSTON & MAINE.—See Concord & Montreal.

CAROLINA, CLINCHFIELD & OHIO.—It is understood that arrangements have been made to finance the building of a line from Dante, Va., the present northern terminus of the road, north over the mountain to a connection with the Chesapeake & Ohio. The estimated cost of this 40-mile extension is said to be about $4,000,000.

CENTRAL NEW ENGLAND.—Stockholders of the New England Railroad are to vote April 30 on the question of approving a 99-year release of the property to the Central New England. The New England Railroad is now leased to the New York, New Haven & Hartford, and apparently a new lease to the Central New England would be a technical change only since the New Haven leases the Central New England.

CONCORD & MONTREAL.—This company, whose property is leased to the Boston & Maine sold at public auction $375,300 of the $400,000 stock recently authorized by the stockholders to President B. A. Kimball for $160 per share, to reimburse the Boston & Maine for its advances for improvements.

DENVER & RIO GRANDE.—Blair & Co., and William Salomon & Co., both of New York, have agreed to underwrite the offer of $10,000,000 adjustment mortgage 7 per cent. cumulative bonds dated April 1, 1912-1932, on the authorization of which issue stockholders will vote on April 27. See also Colorado & Southern.

ERIE.—The New York Public Service Commission, Second district, has granted permission to the Erie to issue $10,000,000 3-year 5 per cent. notes. The proceeds of the sale are to be used to build double track and make grade revisions between Marion, Ohio, and North Judson, Ind., and on the Meadville division and between Buck Tooth and Red House.

LANCASTER, OXFORD & SOUTHERN.—This road, which runs from Oxford, Pa., to Susquehanna, 20 miles, has been sold under foreclosure for $50,000 to John A. Coyle and John M. Groff, representing certain bondholders.

MISSOURI & NORTH ARKANSAS.—W. S. Holt, J. McDonald and Vice-President and General Manager George Sands have been appointed receivers on the application of the St. Louis Union Trust Co., trustee of $600,000 bonds. The road runs from Joplin, Mo., to Helena, Ark., 359 miles.

MISSOURI, KANSAS & TEXAS.—B. F. Yoakum has resigned as a director and member of the executive committee. It is understood that his place will be filled by the election of the newly appointed president, C. E. Schaff.

NEW ENGLAND RAILROAD.—See Central New England.

NEW YORK CENTRAL & HUDSON RIVER.—The New Jersey assembly voted against passing the bill to permit the merger of the subsidiary lines of the West Shore with the parent company within New Jersey, and the merger of the West Shore with the New York Central & Hudson River.

See also an item in regard to the refusal of the New York commission to permit the purchase of the New York, Ontario & Western in State Commission News.

NEW YORK, NEW HAVEN & HARTFORD.—See Central New England.

NEW YORK, PHILADELPHIA & NORFOLK.—This subsidiary of the Pennsylvania Railroad has applied to the Public Service Commission of Maryland for authority to issue $1,250,000 new stock to pay for additional equipment and expenses already incurred.

OHIO RIVER & WESTERN.—See Pennsylvania Railroad.

PENNSYLVANIA RAILROAD.—A press despatch from Zanesville, Ohio, says that the Ohio River & Western, a narrow gage road running from Zanesville to Bellaire, 112 miles, which was recently bought by G. S. Jones, of Toledo, has now been bought by the Pennsylvania Railroad for $3,000,000. It is said that the property includes some coal lands.

PERE MARQUETTE.—This company has failed to secure permission from the Michigan railway commission to issue certain securities, the negotiations of which had already been arranged. The Guaranty Trust Company, New York, will therefore purchase at par the following notes and coupons due April 1, 1912: Flint & Pere Marquette first mortgage coupons; Detroit, Grand Rapids & Western first mortgage coupons; Pere Marquette Pullman equipment series A and series B notes and coupons; Pere Marquette Robert Winthrop & Company equipment notes and coupons; Pere Marquette American Car & Foundry Company equipment notes and coupons; Pere Marquette American Locomotive Company equipment series A and series B notes and coupons.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—The New York Stock Exchange has listed $1,498,000 additional common stock, making the total listed $37,382,400. The stock is to be issued to the Pennsylvania Company at par for a like amount of Cincinnati, Lebanon & Northern stock, the entire $1,500,000 of which the Pennsylvania Company now owns.

PITTSBURGH, SOMERVILLE & CLARION.—This road, which runs from Somerville, Pa., to Clarion, 16 miles, was sold under foreclosure on March 30 subject to $500,000 first mortgage 5 per cent. bonds of 1904-1944.

QUEBEC ORIENTAL.—The holders of the first and second mortgage Matapedia section bonds will vote in London, April 16, on the question of authorizing $250,000 prior lien bonds or other securities bearing not over 6 per cent. interest, ranking in priority to the first and second mortgage Matapedia section bonds, and secured on the Matapedia section.

UNION PACIFIC.—Julius Kruttschnitt and Louis J. Spence have been elected directors, succeeding William Bayard Cutting, deceased, and Clarence H. Mackay, who refused re-election. A member of the executive committee is quoted in the *Wall Street Journal* as saying that neither the Union Pacific nor the Southern Pacific will sell any bonds or do any other kind of financing for some time to come.

VIRGINIAN RAILWAY.—Holders of the $2,625,000 5 per cent. first lien equipment notes, series A, and 5 per cent. second lien equipment notes dated November 1, 1908, are offered the privilege of exchanging their holdings for 5 per cent. cumulative preferred stock at the rate of $1,050 preferred stock for each $1,000 note. (March 29, p. 782.)

WABASH RAILROAD.—Bernard M. Baruch has been elected a member of the executive committee of the Wabash, succeeding Edwin Hawley, deceased.

WEST SHORE.—See New York Central & Hudson River.

FOREIGN RAILWAY NOTES.

The railway in Egyptian Soudan from Khartum southwestward 233 miles to El Obeid, the chief town of Kordofan, was opened February 27 in the presence of General Kitchener and various sheiks. This railway follows the White Nile for about 100 miles and then turns westward. There is another railway from Khartum which extends southeastward up the Blue Nile. Both have their rail outlets at Snakin, on the Red Sea.

Accompanying the estimates of the Baden State Railway, Germany, of its expenditures for the year beginning with April, is a statement of the amounts expended and to be expended for building and rebuilding stations. From this it appears that the new station at Heidelberg will cost when completed more than $9,000,000; the removal of the Carlsruhe station, a trifle more; the rebuilding of the Basel station, more than $12,000,000; the Offenburg station, $4,800,000; the exterior at Pforzheim more than $2,000,000. Altogether the new station work will cost $38,500,000, though the costliest of these stations is across the border in Switzerland. Nearly $13,000,000 of this has been already expended and $12,500,000 is required for this year—this in an old country where very little new railway has been built for many years.